

Conversations on Nature And Art

Vol. 2

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CONVERSATIONS OF NATURE AND ART



CHAPTER I

THE ROMAN CIRCUS.

ANIMALS EXHIBITED IN THE ROMAN CIRCUS. — ELEPHANTS —
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VERDE, GIALLO, ROSSO, AND NERO ARTICO. — PURPLE VINCE.
MARBLE OF ST. PAUL'S AT ROME.

“ Au pied des collines ”
Où Rome sort du sein de ses propres ruines,
L'œil voit dans ce chaos, confusément épars,
D'antiques monumens, de modernes reimparts,
Des théâtres croulans, dont les frontons superbes
Dorment dans la poussière ou rampent sous les herbes,
Les palais des héros par les ronces couverts,
Les dieux couchés au seuil de leurs temples déserts,
L'obélisque éternel ombrageant la chaumière,
La colonne portant une image étrangère,
L'herbe dans les foyers, les fleurs dans les tombeaux,
Et ces vieux panthéons peuplés de dieux nouveaux ;
Tandis que, s'élevant de distance en distance,
Un faible bruit de vie interrompt ce silence.”

LAMARTINE.

MIDSUMMER was now arrived, and Henrietta
and Frederick again received a summons to

pass the holidays with their excellent aunt, to whom they had written many letters, expressing their gratitude for the instruction which she had endeavoured to convey to them, and assuring her how much they looked forward to the pleasure of making her another visit.

A few days after their arrival, our little party returned to their customary pursuits, and entered with Mrs. Fortescue upon a new series of conversations, which we now offer for the information and amusement of our young readers.

MRS. T.

I have been reading this morning, a memoir written by M. Mongez, a member of the French Academy, in which he gives a curious account of the animals which, at different times, have been exhibited at Rome in the public games. The memoir is interesting, not only from the wonderful picture which it presents of the luxury of the Romans. but also as showing us what opportunities were possessed by ancient naturalists, of observing the animals of foreign countries.

We find that the first elephants which had been seen at Rome, were exhibited B. C. 272,

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and consisted of four that had been taken from Pyrrhus, by Curius Dentatus.

FREDERICK.

We all know that Pyrrhus had elephants, from the anecdote related of his interview with Fabricius.

MRS. F.

The use of elephants in war, is very ancient among the Asiatic nations. There is the marvellous account given by historians* of Semiramis and her false elephants; and, in his battles against Porus and Darius, Alexander the Great had to encounter these formidable animals.

ESTHER.

And, from the book of Maccabees†, in which we read the history of the self-devotion of Eleazer, we know that Antiochus employed elephants against the Jews.

MRS. F.

In the year B. C. 252, Metellus sent to Rome 142 elephants which he had taken from the Carthaginians, at the siege of Palermo.

ESTHER.

How were they conveyed?

* Diodorus Siculus.

† Book i. chap. vi. v. 43.

MRS. F.

By means of an immense raft, constructed of planks, covered with earth, and fixed upon empty barrels. By this contrivance, the whole number of elephants were conveyed across the Straits to Reggio, and after having been exhibited at Rome, they were killed with arrows in the Circus, as the state would not give them away, and did not know how to employ them.

ESTHER.

Hannibal had a great many elephants.

MRS. F.

Yes: he used them very extensively in his armies; and at the battles of Trebia and Cannæ, they proved of the greatest use. Asdrubal employed them ineffectually at the battle of Metaurus, and by frightening the elephants which broke the wing of Hannibal's army, Scipio gained the battle of Zama.

ESTHER.

The Italians still believe that all the fossil bones of elephants, found in Italy, belonged to those of Hannibal's army.

MRS. F.

An idea which the immense number of bones that are found, would alone be sufficient

to refuse. In no part of Europe are the bones of fossil elephants so plentiful as in the Upper Valdarno, where the peasants used to employ them as stones, in the construction of their houses. Hannibal entered Italy with thirty elephants: at the battle of Trebia he had eight only left, of which number he lost seven, in attempting to cross the Apennines, so that when he entered the Upper Valdarno, he had only the one remaining upon which he himself rode.

ESTHER.

Are the bones of fossil elephants common?

MRS. F.

Yes; they are found in America, in Northern Europe, France, Great Britain, &c., and it is worthy of remark, that although so widely diffused in latitudes where the animal no longer exists, yet they have not, hitherto, been found in those regions which the elephant now inhabits. Trunks of palms, and other tropical trees, have been found in parts of France, and England, so that at the time tropical animals lived in these countries, the soil produced the vegetation of a tropical climate. Hence, geologists infer that these animals were natives of the countries in which we find their remains, and were not driven there by accidental circumstances: and

hence also we infer a warmer climate in those countries, than that which exists at present.

ESTHER.

How much larger the ear of the African elephant is, than that of the Asiatic.

MRS. F.

Yes; the enormous ear of the African elephant which covers the shoulder, is one of the most striking distinctions to an ignorant observer; but there are many other characteristic differences between the two races*, of which it appears the Romans were well aware.†

FREDERICK.

Which were preferred for fighting?

MRS. F.

In the battle of Magnesia, B. C. 187, the African elephants of Scipio were opposed to those of Asia, in the army of Antiochus, and and were found greatly inferior both in strength and size. The Romans, however, gained the

* The principal distinctions are these. —

Asiatic. — Head oblong; forehead, concave; crowns of the grinders, concave; waved jaws; nails on the hind feet, four.

African. — Head, round; forehead, convex; crowns of the grinders, in lozenge-shaped figures; nails on the hind feet, three.

† Cuvier.

day, and Antiochus was required to deliver up his elephants to his conquerors, in like manner, as the Carthaginians had previously been compelled to resign theirs after the battle of Zama, and Jugurtha his*, at the close of the Numidian war. But we are digressing from our original subject — the account of the Roman games.

At the games B. C. 169†, sixty-three panthers and forty-three bears were exhibited; the same number of panthers, with an equal quantity of lions, were also provided for those of Sylla (B. C. 93.).

HENRIETTA.

Then lions and panthers must have been common at Rome.

MRS. F.

Yes; they used to be exhibited by hundreds. I do not know if the Romans ever saw the white Polar bear, but one was taken to Egypt, in the time of the Ptolemies, and the bear is to be seen in the paintings of the Egyptian tombs, with a procession of people who appear to be inhabitants of a cold climate, as they are dressed in close sleeves, and bring long gloves as a tribute to the Egyptian monarch. ‡

* B. C. 108.

† Of Scipio Nasica and Publius Lentulus.

‡ Wilkinson's Thebes, p. 153.

The hippopotamus was first brought to Rome B. C. 58*, and it was accompanied by five crocodiles and 150 panthers. Although the Romans have not well described the hippopotamus in their writings, yet exact representations of this animal exist in their medals, and in the celebrated statue of the Nile.

Pompey, at the dedication of his theatre, had, among other animals†, the lynx, the caracal, and the one-horned rhinoceros. Cæsar exhibited (B. C. 46) a giraffe and 400 lions.

But all this lavish profusion was little compared with the extravagance of the emperors. Augustus is extolled for having caused 3500 animals to be slaughtered before the Roman people. At the dedication of the temple of Marcellus, 600 panthers perished, a royal tiger was exhibited for the first time, an enormous serpent was shown to the people in the Forum, and water was introduced into the Flaminian circus, for the purpose of showing thirty-six crocodiles which were afterwards put to death. Upon the triumph of Augustus over Cleopatra, a rhinoceros and a hippopotamus were exhibited and killed.

Animals were also trained to perform extra-

* By Emilius Scaurus.

† He had also 600 lions and 410 panthers.

ordinary feats: in a chariot race of Caligula*, the carriages were drawn by camels, and Calba amused the Romans with rope-dancing elephants; while, under Nero, one of these animals, mounted by a Roman knight, was seen descending an inclined rope from the roof of the theatre to the ground.

ESTHER.

But where were the elephants educated to perform such extraordinary feats?

MRS. F.

In Italy. They were young elephants which had been born at Rome; Pliny and Aelian give an account of them, from which it appears, that the Romans kept droves of elephants, in a park, in the territory of Laurentum, where they were disciplined for the Roman games. † These elephants, delighted in the notes of the flute, and, at one exhibition of their docility, twelve of them marched into the theatre, in harmonious measure, scattering flowers over the pavement, and, during the intervals of the dance, beating time to the music. After this display, they feasted in public; six elephants dressed in female, and six in male attire, lay

* A. D. 58.

† Gell's Topography of Rome.

down upon the splendid tricliniums or couches which had been prepared for them: at a given signal, they extended their trunks and ate with the greatest moderation and discretion, the delicacies placed before them in vessels of gold and silver, upon tables of ivory and cedar. They took the golden goblets which were presented to them, and drank with similar decorum. Pliny also mentions their dancing upon a rope, and states that four elephants carried upon a litter one of their companions, feigning illness, and they maintained their balance with the greatest precision.

FREDERICK.

Then they must have been much more accomplished than any of the clever elephants ever exhibited in England.

MRS. F.

We must now again return to the Roman games. The emperor Claudius exhibited four royal tigers, then a great rarity; they were probably the four represented in a beautiful mosaic which was found in a garden at Rome, near the arch of Galienus.*

Titus caused 9000 animals, wild and domestic, to be slaughtered at the dedication of his baths and Martial devotes a whole book to the cele-

* Cuvier.

bration of the exhibition of Domitian, (A. D. 90,) when wild bulls were harnessed to cars, and the Romans then beheld, for the first time, the two-horned rhinoceros, which is represented upon the medals of this emperor. Modern Europe has not yet seen a living specimen of this animal, but the Romans knew both species, and have described them very exactly.*

Trajan caused 11,000 animals, wild and domestic, to be massacred at the games which he gave after the Parthian war (A. D. 105.).

Antoninus exhibited elephants, crocodiles, hippopotami, tigers, &c. and, for the first time, hyænas. We find a striped hyæna perfectly represented in a mosaic preserved in the Vatican.

These spectacles were revolting to the feelings of Marcus Aurelius, but they were renewed with increased ardour by Commodus, who gave public games for fourteen days, during which he himself killed a tiger, an hippopotamus, an elephant, a giraffe, and some ostriches.

FREDERICK.

Whose exhibition came next?

MRS. F.

That of Philip, in A. D. 248., of the animals collected for the purpose by Gordian III. In his list,

* Cuvier.

we find, ten giraffes, — a circumstance worthy of observation, as it is curious that so many of these animals should have been exhibited alive to the Romans, when the moderns, in the 15th century, had only seen one specimen.

ESTHER.

Where did that come from?

MRS. F.

It was sent from the Sultan of Egypt to Lorenzo de' Medici, and is represented in the fresco paintings of Lorenzo's villa of Poggio Cajano, near Florence.

The triumph of Probus was magnificent. He planted a forest in the circus, in which ranged a thousand ostriches, the same number of stags, wild boars, and fallow deer, a hundred lions and lionesses, three hundred bears, chamois, mouflons, leopards, &c.

Constantine prohibited these sanguinary games, but we still read under Theodosius, of numerous animals destined for the circus.

Honorius caused tigers to be harnessed to cars, and Justinian exhibited lions and panthers.

But the difficulty of procuring animals for this work of destruction, and the declining resources of the Roman state, added perhaps to

some feeling of humanity, contributed to put an end to these barbarous practices which were probably introduced, in the first instance, to keep alive the ferocity of a people educated for war and the destruction of their fellow creatures.

ESTHER.

Thank you, mamma, this account is most curious and interesting.

MRS. F.

And it leads us from a view of the myriads of wild beasts slaughtered to gratify the cruelty of the Roman populace, to the still more frightful destruction of human beings for their inhuman sport.

The Coliseum, which, under Titus, was the arena for the degrading combats of the gladiators, became, under Dioclesian, the scene of the martyrdom of the Christians. And yet, without the influence of Christianity, these majestic ruins would have been dispersed or levelled with the dust. Plundered of its lead and iron by the barbarians, Goths and Vandals, and robbed even of its stones, by Roman princes, of the Barberini and Farnese families; the Coliseum was the public stone quarry of Rome, until Benedict XIV. placed it under the safeguard of religion, and by consecrating a spot hallowed by

the blood of Christian martyrs, preserved by the sanctifying influence of the cross, the very building in which Christianity suffered its early persecution. "And what a contrast the present application of this building, connected with holy feelings and exalted hopes, is to that of the ancient one, when it was used for exhibiting to the Roman people the destruction of men by wild beasts, or of men, more savage than wild beasts, by each other." *

ESTHER.

In what a ruinous state the Coliseum appears to be.

MRS. F.

When we consider the number of circumstances which combine to destroy the works of art, it is surprising that so many monuments of the ancients have been handed down to us.

ESTHER.

The action of the atmosphere added to that of water, gradually decompose the materials of which they are built.

MRS. F.

Yes; and many other powers of nature assist

in the work of destruction, nor is the agency of organised beings less active. "A polished surface of a building, or a statue, is no sooner made rough from the causes that have been mentioned, than the seeds of lichens and mosses, which are constantly floating in our atmosphere, make it a place of repose, grow and increase; and from their death, their decay, and decomposition carbonaceous matter is produced, and at length a soil is formed, in which grass can fix its roots. In the crevices of walls, where this soil is washed down, even the seeds of trees grow, and gradually as a building becomes more ruined, ivy and other parasitical plants cover it. Even the animal creation lends its aid in the process of destruction, when man no longer labours for the conservation of his works. The fox burrows amongst ruins; bats and birds nestle in the cavities in walls: the snake and the lizard likewise make them their habitation. Insects act upon a smaller scale, but by their united energies, sometimes produce great effect; the ant, by establishing her colony and forming her magazines, often saps the foundations of the strongest buildings, and the most insignificant creatures triumph, as it were, over the proudest works of man. Add to these sure and slow operations, the devastations of war, the effects of the destructive zeal of bigotry, the predatory fury of barbarians.

seeking for concealed wealth under the foundations of buildings, and, tearing from them every metallic substance,—and it is rather to be wondered, that any of the works of the great nations of antiquity are still in existence.” *

ESTHER.

Were not the ruins of Rome much injured by being employed as fortresses?

MRS. F

Yes: during the civil dissensions of the middle ages, the great Roman families used them as their strongholds. The Coliseum was alternately occupied by the Frangipani and Annibaldi; the theatre of Marcellus, by the Pierleoni and Savelli while the Frangipani also took possession of the arch of Janus, and the tomb of Cæcilia Metella served as a fortress to Pope Boniface VIII

ESTHER.

Of what kind of stone is the Coliseum built?

MRS. F.

This edifice is of travertine, and the seats were covered with white marble. Ancient

* *Consolations in Travel*, p. 272.

Rome was built of two kinds of stone, termed by the modern Italians, Travertino and Piperino.

ESTHER.

Will you describe them to us?

MRS. F.

Travertino is limestone formed by the deposits of the calcareous springs in which Italy abounds. These sources, probably from the volcanic nature of the surrounding country, are strongly impregnated with carbonic acid, which dissolves a portion of the calcareous rocks over which their waters pass. The acid is dissolved by the atmosphere, and the calcareous matter or limestone deposited. Thus is formed the stone of which Rome is built, and the water of the falls of Tivoli and Terni, and many others in the Tuscan, Roman, and Neapolitan states are of the same nature.

ESTHER.

I think that when you showed me a specimen of the stone of which the temples at Paestum are built, you told me that it was formed in the same manner.

MRS. F.

Yes; the stone to which you allude, is formed by the deposits of the river Silaro; and when

we visited the magnificent ruins at Pæstum, we also went to a spot where the process of vegetation is going on, at the same time, with the formation of the stone. It was a large pool, the sides of which were covered with reeds, and of these we carried away several specimens in which the reed was perfectly imbedded in the calcareous matter which the water deposited. The Romans called this stone Lapis Tiburtinus: they procured it from quarries between Rome and Tivoli.*

ESTHER.

"And the Piperino?"

MRS. F.

Is a rock of volcanic origin of a greyish colour, sprinkled over with specks of mica, iron, &c., which, from their resemblance to pepper, give name to the stone. The Romans called it Lapis Albanus, because they procured it from Mount Albano; its loose friable nature renders it unfit for exposure to the air, and hence, although antiquities of this stone are found underground in a perfect state, those which have been exposed to the influence of the atmosphere have suffered considerably. * One of

* At the Ponte Lucano. See *Consolations in Travel*, p. 117., for an interesting account of the formation of travertine.

the most interesting works of art constructed of piperino, is, the tomb of Scipio Barbatus*, which was found in the sepulchre of that illustrious family, and is much admired for its elegance and simplicity of design.

ESTHER.

But how did it happen that his tomb was not of marble?

MRS. F.

Because, during the time of the republic, the Romans used no other than the common building stone of their country. Metellus, after his Macedonian conquests†, was the first to attempt the introduction of marbles into Rome. Crassus, Lucullus, and Sylla imitated his example; but it was not until the time of Augustus, that the luxury of marbles arrived at its height; and although, for forty years of his life, Augustus had occupied a house with no other ornament than a few columns of travertine, yet he boasted "that he found Rome built of bricks but would leave it of marble."

Horace refers to the indignation which the

* He was consul a.c. 298, and conquered the Etrurians at Volsterra.

† About a.c. 148.

old Roman worthies would have expressed at the progress of this luxury, where he says,

“ How stern old Cato’s shaggy brows would bend ;
 How darkly glare our founder’s angry look ;
 For ill could they the conscript fathers brook,
 To see you marble porticoes.”*

So rapidly did the rage for marbles increase, that the quarries then known, were found insufficient to supply the demand, and the Romans pulled to pieces the houses, and even the sepulchres of their ancestors, in order to procure the marbles with which they were decorated. To such an extent did they carry this work of demolition, that Vespasian and his successors issued severe edicts against the practice, which, however, they were unable to stop.

ESTHER.

The Romans used also to paint their marbles.

MRS. F.

They did so. Under the reign of Claudius, they began to colour their marbles with veins and spots, to imitate the rarer kinds ; and in the time of Nero, they even went so far as to inlay the different sorts of marble into each other, so as to invent new varieties.

* Horace, book ii. ode 15. translated by Mr. Mitford.

ESTHER.

To whom did the quarries belong?

MRS. F.

At first the emperors claimed all the marble quarries as their own; but finding that this law discouraged the search after new quarries, they afterwards confined their demands to one tenth of the produce; and this compromise produced the desired end. Numbers of new quarries were daily discovered, particularly in Asia and Africa, which were opened with great rejoicings, and with religious ceremonies. These quarries were placed under the direction of imperial superintendents or procurators, and the luxury of marbles being at its height, during the persecutions of the Christians, those who escaped the summary punishment of the arena were condemned to work at the quarries. We read that St. Clemens*, who was pope or bishop of Rome, in the reigns of Domitian, Nero, and Trajan, was sentenced, as a destroyer of idols, to be exiled beyond the Black Sea to the Chersonesus, and was led into a desert place where he found more than two thousand Christians condemned to the sawing of marble.

* This is the same Clemens who is spoken of by St. Paul, Philippians, c. iv. v. 3. He is always represented with an anchor, having been thrown into the sea with one round his neck by command of the Emperor Trajan.

ESTHER.

And were not some of the Christians sent to work the quarries in Egypt?

MRS. F.

Yes. The porphyry quarries of the Thebaïd were also worked by the Christians: but the consequence of employing them at these occupations was, that when the emperors themselves embraced Christianity, there could not be found persons sufficient to carry on the works.

Constantine and his successors pillaged Rome of its marbles to decorate Constantinople, and so rich was the new capital from the spoils of the old, that when Mahomet II. took the city, he was more anxious to possess the marbles than any other part of its treasure. It is related of him, that on going into the church of St. Sophia, he saw a Turk in the act of taking some pieces of marble out of the pavement. The indignant monarch immediately struck him down with his scimitar, exclaiming, "Do you not recollect that I have generously given to my soldiers the people and the riches of the city, provided they left me the stones and the buildings?"

ESTHER.

Is not Ravenna also very rich in marbles?

MRS. F.

Yes. The Exarchs were no less rapacious

than the Eastern emperors in despoiling the imperial city for their seat of government, and the churches of Ravenna are filled with rare and costly marbles.* When we recollect the numbers that have been thus carried away, the quantity that has been destroyed by barbarians, by fire, by inundations, and the barbarism of the age, we are surprised to find, from the enumeration of an accurate observer†, that there are still 6067 ancient marble columns remaining in Rome.

ESTHER.

Whence did the ancients procure their statuary marble?

MRS. F.

They had several varieties of white marble, the principal of which were the Parian, known by its whiteness, its large glittering crystals, and its semi-transparent quality; the Pentelic, distinguished by its greenish or greyish veins, and which came from a mountain near Athens; and the Luna or Carrara marble, much closer and finer in its grain than the foregoing varieties.

* Charlemagne again, by permission of the Pope, pillaged the palace of Ravenna of its marbles, which he carried to France.

† See "*Trattato delle Pietre Antiche*," by F. Corsi, the diligent collector of the series of a thousand specimens of ancient marbles, presented by Mr. Jarrett to the University of Oxford. Most of the foregoing details are taken from the above work.

The Romans called it Marmor Lunense, because it was shipped at the bay of Luna, now the gulf of Spezia, one of the most beautiful bays of that coast.

HENRIETTA.

Were you ever at Carrara, aunt?

MRS. F.

Yes, and a most interesting excursion it proved. The Carrara mountains abound in beautiful flowers, and the quarries are well worth visiting. The immense masses of this dazzling white marble, glittering in the sun (for it is hewn out of the side of a mountain), have a most imposing effect, and it strikes the traveller with surprise, to see a material which he has been accustomed to look upon as so precious, applied to the commonest purposes. The roads are mended with marble, the doorways, window-cases, steps, &c., not only of the houses of the peasantry, but even of their very cowsheds, are all made of marble.

ESTHER.

Where did the ancients procure their ornamental marbles?

MRS. F.

It is singular, that although they possessed

them in such great profusion, yet the quarries from which they were procured, remain either totally unknown, or their localities are only inferred from the names given to the marble by the ancients. Except in Egypt, I do not think that any of the quarries have been re-discovered, but we know that Asia Minor, Greece, and the islands of the Greek Archipelago, Egypt, and the northern coast of Africa, supplied the Romans with their most precious marbles.

The *verde antico* indicates by its ancient name (Lapis Tessalicus), that it was brought from Thessaly. The *giallo antico* (Marmor Numidicum), that it was the produce of Numidia; and this marble is still found in abundance among the ruins of Carthage.

ESTHER.

And the *rosso antico* ?

MRS. F.

It is extraordinary that although we find this marble in such profusion at Rome, its locality is totally unknown to the moderns; it is, however, surmised, that it was brought from some part of Asia Minor. The quarries of the *nero antico*, were in Laconia, as were also those of the beautiful green porphyry denominated *serpentino*.*

* Lapis Lacedæmonius.

ESTHER.

I have often heard people who have been at Rome, talk of the marble columns of the church of St. Paul.

MRS F.

They are of the beautiful purple veined marble termed *pavonazzetto*, which was brought from Phrygia, and was the favourite marble of the emperor Adrian.* The island of Fabea produced the green and white marble called *apolino*; Scio, the beautiful miscalled *Africano* †, and all the porphyries, and most esteemed kinds of granite, came from Egypt, from the Thebaid, the vicinity of the isthmus of Suez, &c. Many of these quarries have been visited by recent travellers, who have found in them inscriptions recording the names of the sovereigns by whose orders they had been worked,

* These columns at St. Paul's formed part of the decorations of the mausoleum of Adrian (the modern castle of St. Angelo).

† Marmor Chium

CHAPTER II.

SOME CURIOUS TROPICAL PLANTS.

SANDALWOOD AND ITS USES. — CHINESE PASTILLES OF AGILA WOOD. — RICE PAPER AND THE PLANT WHICH PRODUCES IT. — GENOESE ARTIFICIAL FLOWERS. — RIPENING OF THE WOOD OF PLANTS. — THE PITCHER, AND OTHER WATER-YIELDING PLANTS. — COFFEE AND ITS SUBSTITUTES. — TEA. — OPIUM. — THE PERUVIAN COCA. — ARISTOLOCHIA. — GIGANTIC FLOWERS. — QUASSIA. — WIND ESSENTIAL TO THE HEALTH OF PLANTS. — DIAMOND BEETLE. — FIREFLY. — GLOWWORM.

“ Nature never did betray
The heart that loved her! 'Tis her privilege,
Through all the years of this our life, to lead
From joy to joy, for she can so inform
The mind that is within us, so impress
With quietness and beauty, and so feed
With lofty thoughts, that neither evil tongues,
Rash judgments, nor the sneers of selfish men,
Nor greetings where no kindness is, nor all
The dreary intercourse of common life,
Shall e'er prevail against us, or disturb
Our cheerful faith that all that we behold
Is full of blessings.”

WORDSWORTH.

A VISIT to Mrs. Clifford was the amusement of the following day, and we will accompany our party in their walk round her hothouse, that we may glean some of the information which she so willingly imparted to her young friends.

MRS. CLIFFORD.

Since last you saw my collection, I have received this plant of the Sandal (*Santalum album*) which will be interesting to you all, as you are doubtless familiar with the strong aromatic perfume of its wood.

HENRIETTA.

Yes; I have a sandalwood box which was sent as a present to mamma from India.

MRS. C.

This tree, which is twenty years in arriving at perfection, is from two feet and a half to three feet in circumference, and the trunk attains from twenty to thirty feet in height. Some restrictions exist with regard to cutting it. It grows chiefly on the Coromandel coast; and that which comes from the Rocky Mountains produces the greatest quantity of oil. The Sandal is universally esteemed throughout India, and is also a great object of commerce with China. The trees are felled in the wane of the moon, the trunk is barked, and then cut into billets of about two feet in length. These are commonly buried in the earth for two months that the outer part may decay, or be consumed by the white ants, and leave only the heart wood which contains the essential oil, and

which alone, therefore, is esteemed of value. When taken up, the billets are smoothed, squared, and sorted. The wood is very heavy, and sinks in water. The deeper the colour, the higher the perfume, and hence the merchants sometimes divide the sandalwood into red, yellow, and white; but these are all various shades produced by the same species of tree. The nearer the root, the finer the perfume; and the tree is therefore cut as low as possible, and the billet nearest the root, commonly called root sandal, is most esteemed. The chips and fragments that remain from squaring the billets are employed for the distillation of the oil. The finest and largest pieces are sent to China, the others are consumed in India. The Chinese employ the sandalwood extensively in their idol worship, and the expressed oil being mixed with pastilles is burnt in their temples. A piece of sandalwood is esteemed by the Chinese the most acceptable offering which he can make to his idol; and the larger billets, presented by the rich, are reserved for great occasions.*

MRS. F.

Some commentators are of opinion that the almug or alium tree, brought by the fleet of

* Hooker in Botanical Magazine, and Bennett's Wanderings in New South Wales.

king Hiram from Ophir, and so largely employed by Solomon in the building of the temple, was the santalwood.*

MRS. C.

The Chinese also burn another kind of pastille in their temples, which is made from the Agila wood (*Aquilaria agallocha*) pounded and formed into a paste, and then laid over a reed, or a small strip of soft wood about the size of a bullrush. This wood is a royal monopoly.†

ESTHER.

ESTHER.

Is not rice paper brought chiefly from China?

MRS. C.

Yes. Until lately, little was known respecting the nature of this substance, and its name misled people still more in their ideas upon the subject. It now appears, that rice paper is a substance which undergoes but little preparatory process, being the cellular tissue or pith of an Indian plant belonging to the natural order Leguminosæ. This plant (*Eschynomene paludosa*) grows abundantly in the marshes of Bengal, and on the borders of the extensive lakes situated in the provinces between Calcutta and

* Kings, Book I. chap. x. verse 11, &c.

† Finlayson's Mission to Siam.

Hurdwar. I have seen a dried specimen of the plant in the collection of the late General Hardwicke; it is of a low, straggling growth, and seldom exceeds a diameter of two inches and a half in the stem.

ESTHER.

But the sheets of rice-paper are sometimes a foot in length, and from five to six inches wide.

MRS. C.

True; but the plant is cut vertically round the stem, so as to unroll like a scroll of paper; and this accounts for it giving a breadth so much more considerable than you would imagine from the diameter of the stem. The length depends upon the knots or joints in the stem; the longest and most perfect are, of course, selected; but this transverse septum or joint seldom admits of the stem being cut in lengths of above nine to ten inches.

ESTHER.

Has rice-paper been long known in this country?

MRS. C.

It is now about thirty years since it was first brought over by Dr. Livingstone, who

gave a quantity of it to a Miss Jack, celebrated for the beauty and accuracy of her artificial flowers. These, when formed of rice-paper, obtained additional popularity; they were eagerly sought after, and so highly admired, that for one bouquet, their maker received from the Princess Charlotte a present of £70.

MRS. F.

They could not have surpassed in beauty the flowers manufactured at Genoa, which are made at the *Conservatorio delle Fieschine*, one of those noble charitable institutions of which the Genoese nobles have more reason to be proud than of their marble palaces.* The material employed for the petals of the flower is the cocoon of the silkworm after the silk has been wound off; and these flowers are more transparent and more exquisitely finished than any others I ever saw. I did not witness the process by which the cocoon is prepared, for strangers are not admitted to the room where the work is going on.

* The nobility of Genoa have ever vied with each other in their works of public utility and philanthropy. The Cambiasi family are said to have distributed among the poor, 1000 francs a day in food, until the French invasion ruined public credit and destroyed their funds. The *Allergo dei Poveri* owes its origin to the Brignoli family, the *Conservatorio delle Fieschine* to the Fieschi, the orphan asylum to the Carega,—in short, almost every public building and public charity attest the greatness of the nobility of "*Genova la vera, vera*."

ESTHER.

I read, the other day, that artificial flowers were invented by the Egyptians.* . . .

These people appear to have been acquainted with every modern art and manufacture, but I must apologise, Mrs. Clifford, for interrupting you, in your account of the flowers made of rice-paper.

MRS. C.

When first procured by Dr. Livingstone, the sheets of rice-paper did not exceed four inches square, but the Chinese have since greatly improved the manufacture.

ESTHER.

Do they make much use of it themselves?

MRS. C.

They employ it for artificial flowers and for drawings. In India, the natives apply the plant to many useful purposes. It is brought in great quantities to the Calcutta bazaars, in a green state, and the thickest stems are cut into laminæ, from which the natives form artificial flowers, and various fancy ornaments to de-

* Wilkinson's Thebes.

corate their shrines at the Hindoo festivals. The Indians make hats of rice-paper, by cementing together as many leaves as will produce the requisite thickness; in this way, they form them into any shape they please, and, when covered with silk or cloth, these hats are strong and inconceivably light. To fishermen this plant is an article of the greatest utility: it forms floats of the best description for their extensive nets, for which purpose the slender stems of the plant are bundled into fascines about three feet long. With one of these under his arm, and his net on his shoulder, every fisherman goes forth to his daily occupation, and without a boat, stretches his net in the deepest and most extensive lakes, supported by this buoyant faggot.*

MRS. F.

Thank you, Mrs. Clifford, for this interesting account.

MRS. C.

When we return to the house, we will hold a sheet of rice-paper to the light, and you will clearly discover its beautiful cellular tissue, such as no art of man could produce or imitate.

* Hooker's Botanical Miscellany, vol. i. p. 88.

MRS. F.

Will you point out your Mango tree (*Mangifera indica*) to Henrietta, if you please?

MRS. C.

Here it is, but I am sorry to say that it has not flowered since the first summer after I received it from India, when it was covered with bloom. But it is no uncommon occurrence for the trees of tropical countries to succeed well the first year after they are brought to our cold climate, and even to flower and bear fruit; while they afterwards gradually decrease in strength and vigour.

MRS. F.

How do you account for this?

MRS. C.

From the circumstance of their buds, the first year, being formed upon wood which has acquired its perfect consistency, or, (as the gardeners term it) has *well ripened* in its native country: whereas the wood of the following year, being formed in a climate destitute of the light and heat necessary to bring the wood to perfection, the buds which proceed from it are consequently weak and imperfectly matured. De Candolle found that vines of the south of France,

fruited the first year after they were carried to Geneva, but afterwards ceased to produce grapes.

The better the wood has ripened, the better a plant is able to resist the frost; hence trees are less liable to be injured by the cold after a warm dry summer, than after a cold wet season; hence, also, plants freeze less in a good soil than in a bad one; and hence many plants freeze at a less degree of cold, in a country where the summer is not warm, than they do in one where the summer heat is very great. The tea resists in China, where the summer is very hot, a degree of cold which infallibly kills it here, because the wood in England, having less summer heat to ripen it, is the less able to resist the effect of the winter's cold.*

MRS. F.

I have a full illustration of these facts, in the case of a peach-tree in my garden. After the hot summer of 1835, the tree bore abundance of fruit, but this winter, in consequence of the cold wet August of last year†, the wood is so imperfectly ripened, that the tree had no fruit buds upon it, and has been severely injured by the frost.

* D. C. *Physiologie Végétale*, p. 951.

† 1836. Fact.

ESTHER.

Henrietta, here is the pitcher plant, of which mamma was showing us a figure in the Botanical Magazine.

MRS. C.

This singular plant (*Nepenthes distillatoria*)*, grows in swamps, partially immersed in water and partially entwined round the slender trees which grow in its vicinity. The Malays call it the monkey cup, and assert that this animal uses it as a drinking cup. I have also several species of another water-holding plant, the *Sarracenia*, a native of North America, where it is termed the Indian cup.

MRS. F.

Whether the water contained in these leaves is secreted by the plants themselves, or whether they derive it from the atmosphere, is a point which vegetable physiologists have been unable to determine; but now that the *Nepenthes* is cultivated in our hot-houses, they will be better able to study this curious phenomenon. I alluded in a former conversation† to the Brazilian tree called *Cæsalpinia pluviosa*, one of the most extraordinary of the water-yielding plants;

* There is also another species, *N. phyllamphora*.

† First series, chap. 19.

but it has been observed by the Father Léandro only, and its history is as yet unknown. The common teaze (*Dipsacus sylvestris*) contains water in the hollows formed by its leaves and stem, but that is merely an exhalation from the atmosphere.

FREDERICK.

I see that your coffee trees are covered with berries.

MRS. C.

Yes; one year my plants produced so abundantly, that I had a cup of coffee from berries grown in my own hot-house.

HENRIETTA

What kind of coffee do you cultivate?

MRS. C.

There is but one species of coffee (*Coffea arabica*) known. The difference in its flavour and quality is attributable solely to the influence of soil and climate.

From Arabia, the coffee plant was first introduced into Batavia, whence it was spread into the Indian Archipelago. The offsets of a plant presented to Louis XIV. from the hot-house of Amsterdam, first transmitted it to the Western hemisphere. Louis sent them by his

governor M. Deselieux, to Martinique. On the passage, a scarcity of water rendered it necessary to give each person a certain allowance, and M. Deselieux evinced his zeal in the cause, by depriving himself of water, in order to bestow his share upon the plants confided to his care. He was amply repaid for the sacrifice, by the coffee plants arriving in good health; and from Martinique, they have been diffused over the other West Indian Islands, a great part of South America, and the Southern States of North America.

MRS. F.

What is the nature of the soil which produces the Mocha coffee?

MRS. C.

The finest Mocha is produced in a very dry climate and an arid soil, on the slope of mountainous situations; but I have read that the Malabar coffee is so fine, as to be frequently sent to Mecca, and thence exported as the true Mocha.* The coffee of the Isle of France is also much esteemed; it is packed up in bags made of the leaves of the *Vacois*, a species of Screw Pine (*Pandanus Vactua*). The coffee shrubs are set in rows at the distance of six feet,

* Royle's Botany of the Himalaya Mountains.

and are not suffered to grow higher than the hand can reach. One slave can manage a thousand plants. The average duration of the shrub is seven years, during four of which, it yields fruit. The scarlet berry of the coffee is about the size of an acorn; these berries are picked off, as they become ripe, and are exposed in the sun, until the pulp is changed into a dry, brittle husk; they are then beaten in wooden mortars to disengage the seeds, of which each berry generally contains two. They are afterwards carefully examined, and those which have the slightest imperfection are rejected.*

MRS. F.

What is the produce of a coffee shrub?

MRS. C.

The average crop does not exceed from a pound and a half to two pounds on each tree, but a single plant will sometimes produce from sixteen to twenty pounds.† In 1817, the total consumption of coffee in Europe was nearly 140,000,000lbs of which 23,000,000lbs. were consumed in France alone.

MRS. F.

• In the consumption of tea, England can

* Hooker's Botanical Miscellany, vol. 2.

† De Humboldt.

show an equally large proportion. Out of 31,000,000lbs. of tea exported from Canton in 1804-6, 21,000,000lbs. were consumed in Great Britain; and yet, so recent is the period when this beverage became generally known, that a pound of green tea being sent (within the memory of persons now living) to a lady in Scotland, she boiled it and served it up with melted butter to eat with beef, complaining, "that no cooking she could contrive, would make these *foreign greens* tender." In 1666, tea was sold at sixty shillings a pound; but the practice of tea drinking was then not uncommon in England, for in 1660, a duty of eightpence a gallon was laid on the "liquor," i. e. tea, "made and sold in all coffee-houses."*

ESTHER. . .

Did not the French attempt to substitute the wild endive (*Cichorium Intybus*) for coffee?

MRS. F. . .

• Yes. During the war, when all communication was cut off between France and her colonies, Napoleon caused the endive (*chicorée*)

* Hooker in Botanical Magazine. Little is really known about the preparation of tea, but it appears that, with proper management, black and green tea may be made indifferently from the same plant, though *Thea viridis* is preferred for making the green, its leaves being broader and thinner than the other species.

to be used. The stalks and roots were cut into small pieces, roasted and ground. I recollect that, on the return of the Bourbons, a song was composed to the air of *Henri Quatre*, of which one of the stanzas was as follows:—

“ Adieu, Buonaparte, adieu la *chiconée*
 Plus d'amertume dans notre café au lait;
 Nous avons du sucre, du café, et du thé.”

MRS. G.

Yes; but endive resembled coffee in its bitterness and burnt flavour only. It appears that the aroma of coffee exists in the horny coating (or perispermium) of the seed; and the only vegetable substance which possesses the same taste is the seed of the butcher's broom (*Ruscus aculeatus*). This alone makes a good substitute for coffee, but if used it would require the addition of a bitter to complete the resemblance.*

MRS. F.

The stimulating effect of the strong coffee made in the East is extraordinary. Captain Skinner states that the Arab of the desert will go without food for four-and-twenty hours if he can have recourse to a small quantity of coffee; and I have also understood, that this beverage forms the chief nourishment of the government

* De Candolle. *Propriétés Médicales des Plantes.*

couriers when on their longest and most rapid journeys. I heard of one who carried despatches from Constantinople to Calais, travelling day and night, at the rate of six miles an hour, who took nothing but coffee during the whole of this extraordinary journey:

MRS. C.

Opium is used by the natives of India in times of famine* to allay the cravings of hunger, and has even been given by them to their horses in long marches, with the same object.

ESTHER.

And the leaves of the coca are also applied by the Indian messengers to the same purpose.

HENRIETTA.

Yes, I recollect my aunt mentioning this plant last holidays,†

MRS. F.

I then only slightly alluded to the coca, but I will now give you a more detailed account of this singular nourishment, the use of which is as ancient as our knowledge of Peruvian history; for wherever the Incas penetrated, they distri-

* In the famine which prevailed in the East Indies in 1770, opium was purchased by the unhappy sufferers.

† First Series, chap. 12.

buted it as a boon among the conquered nations. The coca is a shrub of from six to eight feet high, covered with small white flowers. The leaves, which form the great object of trade in Peru, are gathered and carefully dried. The scent of the leaf is very slight, and, when taken in small quantities has merely a grass-like or bitterish taste. Its great attraction consists in its stimulating effect on the nerves, upon which it acts like opium. Rude nations have ever sought for artificial excitements; and the lower a people stand in the scale of intellectual ability, so much the more necessary to them are those means of exhilaration which remove for a time the consciousness of the dreary waste within. The passion of the Indian for the stimulus of coca is extraordinary. Stretched unsocially in the shade, he is to be seen alternately filling his mouth with coca-leaves and finely-powdered chalk. While thus engaged, not all the haste and impatience of the traveller, not even the approach of a heavy storm, can arouse him from this state of intolerable apathy. The servant would instantly quit any white master who attempted to restrain him in this indulgence, and would sooner be deprived of necessary food, than employ, in any other manner, the period allotted to the indulgence of his coca. And it is in quiet retirement only that

this pleasure is perfectly unalloyed : it is lost by riding or walking ; so that if the traveller would keep his companion in good humour, whether proceeding by mules or in a boat, he must, four times a day, consent to these tantalising pauses, a sacrifice which even the Peruvian farmers are compelled to make to the infatuation of their workmen.

The miner will work for twelve hours at a time, without any other nourishment than a handful of parched maize ; but every three hours he takes a pause, for the purpose of chewing coca.

The Indian traverses the Andes on foot, over rough roads, with a load of a hundred-weight on his back, and accomplishes frequently ten leagues in eight hours, merely chewing coca from time to time.

During the revolutionary war, the undisciplined patriot troops, stimulated by ample supplies of coca and brandy, traversed long distances in a very short space of time, and thus became dangerous to the Spaniards. Where Europeans would have halted to recover from their fatigue, the ill-clad Indians merely paused for a short interval to chew their coca, and then resumed their march. The stimulating effect of coca is most fully developed on occasions like these, when the frame is exhausted by toil ; it is then that

the Indian will retreat to some gloomy wood, and, throwing himself under a tree, will yield himself, for two or three days, to the occupation of chewing coca, and then return home with trembling limbs and pallid countenance, the wretched victim to this unnatural stimulant. Once seized with the passion for coca, the habit is never cured; he is a ruined being, and ere long, falls a victim to the use of this exciting herb, which, after all, affords but a short alleviation to the misery of the thousands whose destruction it inevitably occasions.*

MRS. C.

"Thank you, for these particulars.

What a curious flower this is, in bloom over our heads!

MRS. C.

It is an *Aristolochia*; the largest flowers of this genus (*Aristolochia cordifolia*) are sixteen inches in diameter. De Humboldt describes the Indian children as putting the flowers of an *Aristolochia* upon their heads by way of caps, and states that he found some of these plants (*A. cordifolia* and *gigantea*) climbing up

* Hooker's Companion to the Botanical Magazine.

the trees, on the borders of the Magdalene, the corollas of which were four feet in circumference.

MRS. F.

The flowers of the laurel-leaved Magnolia (*M. grandiflora*) have been measured of the diameter of nine inches, and you all have read of the gigantic Rafflesia, and have, perhaps, seen the model of its flower, in the room of the Horticultural Society in Regent-street.

MRS. C.

Here is the Quassia (*Q. amara*), which I point out to you, that I may tell you the origin of its singular name. It is so called after a negro of Surinam, who discovered its febrifuge properties, and who, for a valuable consideration, communicated the secret to Governor Dalbergh, by whom specimens were sent to Stockholm, and the plant was named Quassia by Linæus, in honour of the discoverer.

MRS. F.

I see that you admit a current of air into your hot-house.

MRS. C.

Yes, I constantly do in summer, for the stagnation of the air injures the health of the plants. Indeed, it has been proved by experi-

ment that moderate wind is very conducive to the growth of plants; and when trees are kept in repose by being tied too closely to a stake, this unnatural state of quietness impedes their vegetation, and diminishes their strength.* I therefore never stake my trees unless I find it absolutely necessary, but allow them to have the full benefit of the effects which the wind exercises over them, in increasing their circulation, and promoting their growth.

HENRIETTA.

How gracefully that Mimosa bends its branches!

ESTHER.

Yes, but how pretty it must look in Brazil, where the Diamond Beetles (*Ectinus imperialis* and *nobilis*) sometimes cluster upon them in such myriads that the branches are absolutely bent down under the weight of their glittering burden.

HENRIETTA.

The fire-flies also must be very beautiful.

MRS. F.

Your mention of the fire-fly (*Elater noctilucus*), reminds me of a curious circumstance,

* D. C. Phys. Vég. p. 177.

which took place at Corfu. A young officer, who had lately joined the garrison, was one evening on duty, when he observed sparks issuing, as he thought, from the powder magazine. The alarm was immediately given, and the guard turned out, when it proved, on further examination, that some fire-flies flitting over the magazine had awakened the apprehensions of the young officer, who had never seen these insects before.*

HENRIETTA.

Is the fire-fly a native of England?

MRS. F.

No; but the winged fly of the glow-worm is luminous, as well as its crawling companion; and I have constantly seen it in a summer's evening fly into the rooms, attracted by the light of the candles.† It is generally about the first week in July, that these insects make their appearance; but the time when I saw them in the greatest numbers, was towards the end of June, 1825. I was then at Heidelberg; and one afternoon that we were walking among the ruins of its splendid castle, we became so interested in recalling the fortunes of Elizabeth of Bohemia, the wars of the Palatinate, and all the other

* Fact.

† In 1835, 1836, and 1837.

events of historic interest of which this castle was the theatre, that we were unconscious how late it had become before we turned our steps homewards. The green banks of the path which led to the town, were covered with glow-worms; and myriads of luminous insects were flying about, which we easily caught with our hands. At the time, we took them to be fire-flies; but on comparing them subsequently with the plates of that insect, we found that they were the winged glow-worm (*Lampyris noctiluca*) of our own country, which we never before had happened to have seen.

MRS. C.

Then you are fortunate in having met with them so often, for they are generally considered to be of unfrequent occurrence.

HENRIETTA.

Aunt, you seem to meet with some object of interest wherever you go.

MRS. C.

I dare say, my dear Henrietta, that you have read Miss Aikin's excellent story, called "Eyes and no Eyes." An observing mind, like your aunt's, will every where discover sufficient to admire and instruct, where others see nought

but a dreary waste. "It is for the naturalist to find charms and attractions, subjects for musing and contemplation, in the most ordinary scenes, and in objects of every-day occurrence, in the path where he treads, in the hills with which he is encompassed, and in the atmospheric changes of the spacious canopy of heaven, spread over all."

"God speaks through all, and is in all things found."

CHAPTER III.

DOMESTICATION OF ANIMALS.

INTELLIGENCE OF A RAVEN. — THE AGE OF BLINDS. — ANECDOTE OF A ROSELLI. — FAMILIARITY OF FISHES. — FISH PONDS OF LUCULLUS. — DOMESTICATION OF CAT, &c. — OF A MOLE — OF A TOAD. — PELISSON'S TAME SPIDFR. — PHEASANTS AT GORDONWOOD. — LEARNED ANIMALS. — SECRET OF THEIR EDUCATION. — THE SMUGGLING DOGS OF THE JURA. — REASON AND INSTINCT.

‘ There is a book, w.h.o runs may read,
Which heavenly truth imparts;
And all the lore its scholars need,
Pure eyes and Christian hearts.
‘ The works of God above, below,
Within us, and around,
Are pages in that book to shôw
How God himself is found.”

KEBLE.

FREDERICK.

AUNT, the raven has carried off my penknife,
and has hidden it in a tree.

MRS. F.

He is indeed a sad thief; the other day he stole thirteen eggs from the nest of a hen, and the most curious part of the circumstance is, that he contrived to carry them all away without

breaking one of them, although he had to fly over a paling six feet high.

HENRIETTA.

And, a week since, he carried off the eggs of a guinea fowl in the same manner; having discovered her nest, he every day stole her egg as soon as it was laid.

FREDERICK.

This was the more provoking from the trouble which we all took to find out where the guinea hen laid; and I do not think that we should ever have succeeded, had not the bailiff told us that these birds always make their nests open to the east. This information guided us very much in our search, and saved us hunting for it in several other directions.

HENRIETTA.

The raven is certainly a very clever bird; it is astonishing how distinctly he calls us all by our names; and I have frequently had a useless walk, thinking I have been wanted in the house, when it has proved to be only the summons of old Jack that I have obeyed. But he is flying this way, for I hear the heavy flapping of his wings.

MRS. F.

I suppose he is come to see if we have any-thing to give him; but he fares well, for he feeds with the dogs; and he is such a tyrant, that neither dog nor cat dare dispute with him the possession of any morsel which he has selected.

HENRIETTA.

Ravens are very long lived?

MRS. F.

The raven, the eagle, the domestic goose, and the swan, have all been known to live upwards of a century, which is the same term of existence as that assigned to the elephant, the crocodile, and fine-carp. Gesner mentions a pike which was cast into a pool in Suevia, in 1230, and was taken out in 1497, being then 267 years old; but no other animal is known to attain the age which naturalists give to the whale.*

ESTHER.

But, to return to the raven; it is certainly a most sagacious, though a most mischievous animal. We had one which used to live in the drying ground, and its great amusement was to pick the clothes-pegs off the lines, and collect them in a heap. The laundry-maid, not liking

* See 1st Series, chap. xviii.

the trouble he gave her by this operation, always made a point of shutting the raven up, on the day when she hung out the clothes to dry. This manœuvre the raven soon discovered, and ever after invariably hid himself every Wednesday, which he had ascertained to be the day of his weekly incarceration.

MRS. F.

That dogs and cats will soon learn to discern stated periods is well authenticated, but that birds should acquire such intelligence may appear to us more extraordinary. We had once one of those beautiful birds of New Holland, called the Roselle, or Rose Hill Parrot, which for many years delighted us with its clear, melodious whistle; and we observed that it washed itself upon one day in the week only; and so regular was it in confining its ablutions to the stated day, that it never went into the water on any other, although a bath was always standing in its cage.

ESTHER.

All animals may be readily taught to obey any given signal which summons them to receive their food. There are many instances of fish being so tutored. Eels have been taught to obey

a whistle*, and the Chinese gold-fish come when called by the ringing of a bell.

At the gardens of Charlottenburg, near Berlin, the carp are collected together by ringing a bell, at the sound of which the fish may be seen in shoals, putting their noses out of the water. (Hand Book, p. 277.)

MRS. C.

Not must we forget the fish ponds of Lucullus, where the fishes were kept belonging to the Romans of Baiæ. Pliny states, that these fishes were so tame as to feed out of the hand; and when called by their feeders, they leaped out of the water. Each fish, he says, knew its name, and several of them were decorated with necklaces.

ESTHER.

This account is rather marvellous; but I certainly have heard of a lady who asserts that each of her tame gold and silver fishes knows its own name; and as she calls Calypso, Neptune, &c. that fish upon which she had bestowed the appellation would come. There is a gentleman living near Braintree, in Essex, who has some tame carp, which know his whistle; and hearing his summons, immediately swim towards him to receive their accustomed repast.

* Ellis's Polynesian Researches.

MRS. F.

And at Ferney, I saw the fishes swim directly to the gardener when he made a splashing in the water : but these instances of the familiarity of fish are very frequent. Even the common mole may be domesticated, for I know of a gentleman who, for some time, kept one of these animals in a box filled with turf, and whenever he tapped the side of the box, the mole would immediately come out, jump upon him, and eat from his hand.

FREDERICK.

And our gardener keeps a pet toad in the greenhouse to destroy the ants, which injure the grapes and the plants. This animal is so tame that he comes directly when called ; but I believe toads are easily domesticated.

ESTHER.

Nor must we omit the story of M. Pelisson, who, when confined in the Bastille, tamed a spider, and taught it to come for food at the sound of an instrument. Kirby and Spence also state that a manufacturer in Paris fed 800 spiders, which had become so familiar that, whenever he entered the apartment, "which he usually did bringing a dish filled with flies, but

not always, they immediately came down to him to receive their food." *

MRS. F.

" At Goodwood, the seat of the Duke of Richmond, the pheasants are taught to obey a signal. They are reared in a large enclosure, which was formerly a chalk pit, whence they are suffered to wander into the woods; but, at the sound of a bell, they daily repair to the chalk pit to be fed.

FREDERICK.

Aunt, did you ever see the learned dogs, which were exhibited in London, some years since?

MRS. F.

Yes, and I also saw the learned pig.

FREDERICK.

How very wonderful their performances were, in playing cards, spelling, calculating, and so forth!

MRS. F.

Implicit attention to a sign from their master, is, I believe, the whole secret of the education of learned animals.

HENRIETTA.

" Then don't you think, aunt, that they know one card or letter from another?

MRS. F.

Most assuredly not; their whole education consists in being taught to understand a secret signal, made by their master.

FREDERICK.

But, how does that enable them to choose the right card or number?

MRS. F.

Merely by obedience to their master's signal.

ESTHER.

And what do you suppose, mamma, to be this secret sign of intelligence between the man and his dog? for he does not appear to direct the animal either by words or action.

MRS. F.

If you press your thumb nail against the nail of one of your fingers, a slight clicking noise is made, so faint that it would hardly arrest the attention of any but one prepared to detect it. This, I believe, is the usual signal employed; but I will tell you my reasons for coming to this conclusion.

ESTHER.

Thank you, mamma; we should much like to hear them.

MRS. F.

Having been previously told, by an intelligent foreigner, that this click with the nail was the usual sign of intelligence between the animals and their masters, I went, thus warned, to see the two learned dogs, to whose performances you have been just alluding. You are aware, that, in all the feats which these animals perform, the cards, numbers, or letters, are all spread out in a circle upon the floor, at short distances from each other. When the dog had received his orders, he walked leisurely round the circle pausing slightly at each card, apparently as if to examine it; but, in fact, in order to give his master time to make the concerted signal. When the animal arrived at the right card, I distinctly heard the man make a slight click, such as I have described, upon which the dog stopped, took up the card, and received the applause of the spectators for his sagacity.

Sometimes, the dog did not hear the signal the first time; but, in that case, he never attempted to select a card upon his own responsibility, but would patiently take another round, that the signal might be repeated.

FREDERICK.

Then this is the whole secret?

MRS. F.

It certainly was, in the case in question. I have not since seen any more learned animals to repeat my observations; but the individual who first told me the circumstance, assured me that every instance which he had witnessed, confirmed him in his belief that this is the customary sign employed.

HENRIETTA.

Then after all there is nothing so very wonderful in these learned animals.

MRS. F.

There, Henrietta, I do not agree with you; for it is to me very surprising, that animals can be brought to the state of intelligence and docility necessary to enable them so quickly to understand, and so readily to obey, the secret orders of their master. I fear there is some cruelty exercised in their education; and that the poor creatures have many blows and some starvation to encounter, before they are qualified for public exhibition.

ESTHER.

Did you ever hear, Frederick, of the smuggling dogs?

FREDERICK.

No ; pray tell me their history.

ESTHER.

Mamma will, I dare say, relate it ; for she heard it from a lady whose brother was in one of the frontier custom-houses, and who therefore had the most correct information respecting them.

MRS. F.

You are, perhaps, not aware that there is always great smuggling going forward, in order to pass the Swiss watches and lace into France.

ESTHER.

The works of watches are manufactured extensively in the Swiss valley of the Jura*, whence they are sent to Paris or Geneva, to be put into cases and finished.

MRS. F.

Every means is taken to elude the vigilance of the French custom-house officers, who are very strict upon this frontier ; and the following is one among the many expedients adopted :—Large dogs, of a peculiar race, are trained to

* Chaux-de-Fond, Locle, &c. For an account of these valleys, see either Simond's Travels in Switzerland, or Ebel, Voyageur en Suisse.

cross the mountains by the more retired passes; and they are invested with a false skin, between which and their own coats the contraband goods are deposited. These animals travel in parties, a quick-scented dog being placed at a short distance in front of the others, as an advanced guard. If he sees a custom-house officer approaching, he immediately gives the alarm, and the party retreat, and pursue a more devious route, turning backwards and forwards until they have eluded the pursuit of the enemy. When all is safe, they again continue their journey, preserving always the same caution until they succeed in reaching their destination.

FREDERICK.

But how can these dogs be taught to avoid a custom-house officer?

MRS. F.

By a cruel but simple expedient. Their masters, when instructing them in their duties, occasionally put on the uniform of a custom-house officer; and when in this garb, they beat the poor dogs most unmercifully. Hence these animals acquire the greatest apprehension of any person in that costume, and fly from them with the greatest trepidation.

FREDERICK.

But, I suppose that they are sometimes caught?

MRS. F.

It does happen occasionally, that these fine creatures fall into the hands of the enemy; and in this case no mercy is shown them. They are brought to a regular court martial; the evidence against them is heard; and if found guilty, they are sentenced to be shot.

MARY.

Poor creatures! are they never pardoned?

MRS. F.

But seldom, for the French laws against smuggling are most severe. I do indeed know an instance of one dog being spared, for whose life great interest was made. Not many years since, he was still alive; having renounced his smuggling pursuits, and entirely overcome the prejudices of education, he was comfortably domesticated in a French *douane* as the faithful servant of —, a custom-house officer! But all this time we have forgotten the raven and Frederick's knife.

FREDERICK.

I have no chance, aunt, of finding it again;

for he is so sly, that while we have been talking, he has hopped off with it, and concealed it in some other of his hiding places.

ESTHER.

I never saw such instinct in a bird as this raven sometimes displays.

HENRIETTA.

One would almost think he reasoned.

FREDERICK.

But really some animals are so sensible that, if they had reason like ourselves, they could not act better.

HENRIETTA.

That reminds me of the lines of Cowper:—

“ Reas’ning at ev’ry step he treads,
Man yet mistakes his way;
While meaner things, whom instinct leads,
Are rarely known to stray.”

Pope has also a passage upon instinct and reason, which I learned at school.

MRS. F.

Of reason and instinct we know nothing; and the subject is one of those which, in the present finite state of our faculties, we are not permitted to penetrate. “The secret things belong unto the Lord,” and the Christian phi-

philosopher will be the first to admit with humility how vast those bounds are “which he cannot pass;” and how the greatest acquirements of the human mind “serve only to place him on the very frontier of knowledge.”*

“Instead of perplexing our minds about secret things, let us walk in the light which the Lord has graciously afforded us; and, conscious of our inability to comprehend his deep designs, let us adore the depth of the riches of his wisdom and knowledge, whose judgments are not to be investigated, nor his ways traced out; whose mind none can penetrate or comprehend; who needs and regards no counsellor; who first gives life and breath, and all things to every one; and to whom none can render any thing which he has not first received from him: for of him, and through him, and to him, are all things, to whom be glory for

* Herschell's Preliminary Discourse.

† Scott, in his Commentaries.

CHAPTER IV.

THE COLOUR. BOX.

BISTRE.—LAMPBLACK.—INDIGO.—ANECDOTE OF ST. ISIDORE AND THE WELL.—GAMBOGE.—MADDER.—SAP GREEN.—BROWN PINK.—LAKE.—BRAZIL WOOD.—PRUSSIAN BLUE—ITS DISCOVERY.—CARMINE.—VERMILION.—RED AND WHITE LEAD.—NAPLES AND CHROME YELLOW.—FLAKE WHITE.—COLOURS FROM COPPER,—FROM ARSENIC.—CHALCOPHANY, ZAFFRE, SMALT, AND POWDER BLUE.—ULTRAMARINE.—OCHRES AND EARTHY COLOURS.—COLOURS OF THE EGYPTIANS.—MUMMY, AN EPITOME OF THE ARTS OF THE EGYPTIANS.—DISCOVERIES OF ROSSELLINI.—GRECIAN SAGES IN EGYPT.—AVERSION OF THE PRIESTS TO HISTORICAL RECORDS.—MONUMENTS, WHEN BUILT.—PALMYRA AND GENOA.—ROSETTA STONE.—HIEROGLYPHIC WRITING.—REPRESENTATION OF THE JEWS ON EGYPTIAN MONUMENTS.

“First the flaming red
Springs vivid forth; the tawny orange next;
And next delicious yellow, by whose side
Fall the kind beams of all-refreshing green,
Then the pure blue, that swells autumnal skies,
Ethereal blaze; and then, of sadder hue,
Emerge the deepen'd indigo, as when
The heavy-skirted evening droops with frost;
Whilst the last gleamings of refracted light
Died in the fainting violet away.”

THOMSON.

HENRIETTA.

AUNT, what is the name of this fine, warm, brown colour with which you are drawing?

BISTRE.

MRS. F.

It is called bistre.

HENRIETTA.

Then, I must next beg of you to tell me what bistre is; for it was only yesterday that we were talking about colours, and none of us knew from what half of them are produced.

I shall be most happy to tell you. Let us begin with bistre, the colour in question, which is the burnt oil extracted from the soot of wood.

ESTHER.

What wood is used for the purpose?

MRS. F.

Beech is that which is best adapted for the manufacture; the wood must be perfectly dry before it is used. The best bistre comes from France. Suppose that we class the colours according to the different kingdoms to which they belong; and we will proceed with the vegetable, since we have begun with it.

Lampblack somewhat resembles bistre in its preparation. It is made, in England, at the turpentine houses, from the refuse of the resin-

ous substances which are there manufactured. This residuary or refuse resin is burnt in a furnace so constructed, that the dense smoke arising from it passes into chambers hung with sacking, upon which the soot is deposited, and from time to time swept off, and sold without any further preparation. When required for nicer purposes, it is prepared from the soot of linseed oil, by hanging a large copper pan over the flame of a lamp to receive its smoke; hence it is called lampblack. In Germany, great quantities of lampblack are manufactured, not from wood, but from a kind of pit coal; and, indeed, it appears from experiment, that the difference of soot does not depend entirely upon the quality of the material employed, but upon the manner in which it is burnt.

HENRIETTA.

Indigo, I know, comes from a plant.

MRS. F.

Yes, this fine blue is produced by the leaves of all the different species of indigo (*Indigofera*); but I believe it is principally procured from *Indigofera tinctoria* and *anil*. The plant contains the most indigo at the period of flowering. But the cultivation of indigo is an object of such national importance, that you must read some

detailed account of its growth and manufacture. It forms one of the most valuable articles of commerce in the East Indies, and parts of South America.*

FREDERICK.

I wish, aunt, you would tell us all about it; I do so dislike reading dull accounts of manufactures.

MRS. F.

Indeed, my dear Frederick, you very much mistake my object in conversing with you, if you think that I intend to save you the trouble of investigating for yourself. On the contrary, I wish, by telling you a little, to awaken in you a desire of learning more. It is only by your own exertions, that you can become really well informed, and patience and perseverance are necessary to the task. A king† was told more than two thousand years since, by a wiser person than either you or I, that there was no “royal road” to learning; and rest assured that, if you wish to learn, you must read, and that diligently and patiently, and must not be deterred

* The colouring matter called *indigotine* exists also in the woad (*Isatis tinctoria*), and in *Nerium tinctorium*, one of the oleander genus.

† See the anecdote of Ptolemy Philadelphus and Euclid.

by any little difficulty which you find in your way. Did you ever hear the story of St. Isidore and the well?

FREDERICK.

No, aunt; will you have the kindness to tell it us?

MRS. F.

St. Isidore, Archbishop of Seville, when a schoolboy, "was very idle, played truant, and ran away into the fields. After wandering about, he became weary and thirsty, and stopped at a well. The stone round the brink of the well was hollowed into grooves and channels. They excited the curiosity of the boy; and the good woman who was drawing water explained the cause of this appearance; the stone was channelled by the constant rubbing of the bucket-rope. The future bishop then bethought himself, that if the hard rock could thus be worn through by this soft and yielding substance, surely his own dulness might give way to application and industry; and, thus pondering, he returned to his home, and instantly passed into a new life and being. The studies over which he had slumbered in weariness, now afforded nought but delight; and he prosecuted them

with such energy, that he became the most learned man of his age and country. In the rich monastery of St. Isidore, at Seville, a fragment of the well stone may yet be seen by the curious pilgrim.*— But, to return to our colours.

HENRIETTA.

What is gamboge?

MRS. F.

Gamboge is a gum resin, obtained by wounding either the shoots or the bark of a tree (*Stalagmatis Cambogioides*), which is a native of Siam and of Ceylon; but it is often adulterated with the gum of a Malabar plant†, *Garcinia cambogia*.

ESTHER.

Madder, which I see in your box, manina, is produced by the roots of a plant of the same name.

MRS. F.

Yes; it is so. Madder (*Rubia tinctorium*) is extensively cultivated in Belgium, and used

* Edinburgh Review, vol. xxv. St. Isidore was born about 570, succeeded his brother as archbishop of Seville in 600, or 601. He was the great restorer of discipline in the Spanish church, and was also the historian of the Visigoths, and the friend of St. Gregory the Great. He died in 636.

† Medical Botany.

formerly to be an object of agriculture in our own country. The roots are gathered at the end of the second or third year, and, being dried, are packed in bags for the dyers, who grind and prepare them for use.

HENRIETTA.

What is sap green?

MRS. F.

Sap green is the juice of the unripe berries of the buckthorn, evaporated until it becomes of the consistence of gum. Brown-pink consists of chalk coloured by fustic, and heightened by other preparations.

MARY.

And what is fustic?

MRS. F.

It is the wood of a species of mulberry (*Morus tinctoria*), which is a native of the West Indies, of Brazil, and other parts of South America, whence it is imported into Europe, to dye yellow.

Indian ink we have spoken of on a former occasion *: and these comprise all our vegetable pigments, excepting lake, with which our ca-

* 1st Series, Chap. xi.

talogue properly concludes, as, although some kinds are prepared from madder or Brazil wood, others are made from cochineal or by discharging, the colour of scarlet rags. The colouring matter is mixed with a solution of alum, and, when submitted to a chemical preparation, the colour we call lake falls to the bottom of the vessel.*

HENRIETTA.

What is Brazil wood?

MRS. F.

It is the wood of a tree (*Casalpinia exista*) which grows in Brazil, the Isle of France, Japan, and other countries. This wood, when first cut, is of a light colour, but turns a dark-red upon exposure to the air. When the Spaniards first found the tree in Brazil, they were struck with the sanguine colour of the wood, and immediately thought it must be that of which the cross had been made, and that it bled at the sacrilege of being wounded.

We will now proceed to the colours which we derive from the animal kingdom, at the head of which, I think, we must place Prussian-blue, although the colouring matter of this pigment is iron. Prussian-blue is made by

* Brande's Chemistry.

calcining animal substances, such as bones, hoofs; bullock's blood, &c. with pearlash, in a red-hot iron vessel, and pouring water upon the mixture. As you are not chemists, I will not detail to you the gradual additions of alum, sulphate of iron, and muriatic acid necessary to complete the process, and to form the brilliant colour which we call Prussian-blue; a name it derives from having been first discovered at Berlin, in 1740, by Diesbach, a colour maker, who, having thrown several liquids from his laboratory, upon the ground, was surprised to find it tinged with a beautiful blue colour. Recollecting what liquids he had thrown out, Diesbach repeated the experiment, and prepared the colour, which has since gone by the name of Prussian or Berlin blue.

ESTHER.

How many discoveries have arisen from accident! The idea of ascending the air in a balloon, originated in a singular manner. The wife of Montgolfier, was preparing to cut up a loaf of sugar, and taking off the paper cap from the top, she threw it upon the fire; the smoke and draught operating upon it, carried it through the flue, and caused it to ascend above the top of the chimney. Montgolfier reflected on the incident, and proceeded to make a tissue-paper

bag, and inflated it with smoke, produced from cork-cuttings; this succeeded agreeably to his expectations. He was soon imitated by others, and the science of ballooning rapidly advanced. But to return to our subject. Ivory-black is made from bones or ivory burnt in a close vessel, and may be considered as a variety of animal charcoal.

MRS. F.

Carmine is prepared from the cochineal insect: this and sepia, of which we have before spoken*, complete the animal substances of our colour box. We will now proceed to the mineral kingdom, which furnishes the most durable and the greatest part of our colours.

ESTHER.

Vermilion is produced from quicksilver, combined with sulphur. Lead affords us several pigments.

HENRIETTA.

Yes, red and white lead.

MRS. F.

In order to obtain red lead of a fine colour, it requires to be manufactured in large quantities.

HENRIETTA.

And white lead?

MRS. F.

White lead, or ceruse, is prepared by exposing sheet lead to the action of the vapour of vinegar. Naples yellow, and Chrome yellow, are likewise preparations of lead; and so is also flake white, which, like white lead, is a corrosion of this metal, but with this difference, that it is produced by the acid of grapes instead of vinegar.

ESTHER.

Verdigris is a similar preparation to white lead and flake white, being formed by exposing copper to the fumes of vinegar, when it becomes gradually incrustated with the green powder which we call verdigris. At Montpellier, where it is largely manufactured, the acid of grapes is employed.

MRS. F.

Verditer is also produced from copper; and Green Bice, the celebrated Arimenian stone of the ancients is, I believe, an earth calcined by copper.

ESTHER.

Iron, as you have before told us, forms an

important ingredient in Prussian blue; and arsenic, I believe, gives us several colours.

MRS. F.

Yes; Orpiment, so called from *auri pigmentum* (golden pigment), consists of arsenic*, and forms the basis of King's yellow. They are, therefore, both poisonous, like all preparations of this metal.

ESTHER.

Cobalt comes next.

MRS. F.

The beautiful blue furnished by cobalt is used very extensively as a colouring material in the porcelain, earthenware, and glass manufactures. In our common blue earthenware plates, for instance, the pattern is generally printed with cobalt upon paper. The paper is applied to the plate in a state of biscuit, and the colour adheres to it on the application of heat.

ESTHER.

What is the origin of its name?

MRS. F.

Cobalt signifies in German, an evil spirit

* Yellow sulphuret of arsenic.

(*kobold*), and has been given to this mineral by the German miners, in consequence of the ill effects to which they are exposed, from the unwholesome vapours of the arsenic which is combined with the cobalt; they imagined that an evil genius resided in the mines of cobalt, and loved to torment them.*

Zaffre, the cobalt of commerce, is prepared by calcining the ore, and thus expelling the sulphur and arsenic. Smalt is zaffre melted with sand and potash, when it forms a blue glass†; and smalt pulverised is powder blue, employed so much by our laundresses, and also in the painting of porcelain, and in the colouring of artificial stones. In Germany, where the metal is plentiful, it is also used, when coarsely ground, as sand for drying ink, when writing. Cobalt likewise forms the base of several kinds of sympathetic ink.

ESTHER.

I think, mamma, that we have now enumerated all the metallic colours:

MRS. F.

Then we may proceed to the earthy mi-

* *Hist.* iv. p. 217.

† Amsterdam is celebrated for its smalt manufactories; the method employed in the preparation of this article is kept secret.

erals. Lapis lazuli affords us ultramarine, which is obtained by calcining the stone, and reducing it to an impalpable powder. It is next mixed with a paste composed of wax, linseed oil, and resinous substances, and then washed and dried into the powder called ultramarine. Ultramarine does not change from age; the consequence is, that while the other colours of a painting lose their tone by time, and the effects of exposure to light and air, the blue resists their ravages; hence we often see it so prominent in many of the paintings of the old masters, as to destroy the harmony of their colouring. Lapis lazuli is brought principally from Siberia, where it is found in the vicinity of Lake Baikal; but it also comes from Persia, Natolia, and China. The yellow spots and veins in this mineral are composed of iron pyrites.

ESTHER.

I think, mamma, that you have no other colours to notice, excepting some of the earths, such as yellow and Roman ochre, sienna, umber, and Cologne earth.

MRS. F.

Yes; these close our catalogue. UMBER is so called from Ombria, the ancient name of

the duchy of Spoleto, whence this earth was first derived. Cologne earth is prepared from the brown-coal procured at Friesdorf, near Bonn, where it exists in large quantities.*

ESTHER.

How durable the colours used by the Egyptians must have been to remain so bright as they are found at present in their tombs!

MRS F.

Mr. Wilkinson states them to have been so carefully prepared, that he has been able to form cakes from the broken fragments found in the tombs, which may yet be employed in representing on paper the colour of figures copied from Egyptian ruins, although it must now be three thousand years since they were prepared. The reds and yellows were apparently ochres; the greens and blues extracted from copper; the white appears to be a very

* The stratum here worked is in fact a subterraneous forest, buried at an early period of the world's existence, and now converted into lignite or brown coal. Trunks of large trees are found imbedded in this stratum, which exhibits the wood in all its stages. We found specimens in which its structure is scarcely changed, and others in which it had passed into a bituminous, earthy coal, which, when mixed with water and dried, is used as fuel. The same mines also contain an aluminous earth, which furnishes material for extensive alum works, and also a stratum of fine clay, employed in a pottery adjacent, for making the conical moulds used in refining the beet root sugar.

fine lime reduced to an impalpable powder; the black is lampblack; and the compound colours were formed by combinations of the above. Their paint was mixed with water.

HENRIETTA.

Then it would easily wash off.

MRS. F.

Yes, it therefore would necessarily require some protection against the weather; and we find the Egyptians so attentive in this respect, "that the interstices of the blocks which form the roofs of the temples, independently of their being well fitted together, and cemented with a tenacious and compact mortar, were covered by an additional piece of stone let into a groove of about eight inches in breadth, extending equally on either side of the line of their junction."

ESTHER.

Is not Egyptian mummy used as a pigment?

MRS. F.

Yes, it affords a rich brown, which is much esteemed by artists.

HENRIETTA.

How much I should like to see a mummy !

MR. F.

A mummy may be said to comprise a complete epitome of the arts of the Egyptians, all of which were called in requisition for its preparation. The arts of weaving and dying, of founding, working, and colouring glass and metals, of engraving upon fine stones, of painting and carving wood, of gilding, varnishing, and enamelling; the arts of preparing resins, perfumes, &c.; in short, many arts which we have yet to recover, as they are entirely lost to the moderns.

ESTHER.

I have heard that a mummy has above a thousand ells of bandages rolled round it, some of flax, some of cotton, and some even of silk.

MRS. F.

The discoveries of Rossellini, now in the course of publication, exhibit a most wonderful picture of Egyptian trades and manufactures. In the drawings which he has copied from the tombs, we see represented the whole process of

the silk and cotton manufactures; the shop of an Egyptian upholsterer of between 3000 or 4000 years ago, from which we learn that the Egyptians of that age sat in chairs as we do, instead of reclining at their repasts in the effeminate, recumbent position adopted by the Romans. We also find furniture of most elegant designs, under the progressive operations of cutting, turning, veneering, polishing, gilding, and adorning with stuffed silken cushions. From the goldsmith's shop, we learn, that gold and silver plate, knives, spoons, turcens, banqueting cups, &c. were worked as exquisitely by the Theban goldsmiths as by ours. The minute delicacy of their cameos and intaglios could only have been effected by means of the microscope; the art of causing figures to move by clockwork, they appear also to have understood; and they were familiar with the use of the syphon and the arch. The art of hardening copper instruments of war, and iron and steel for the purpose of cutting inscriptions upon the granite, is now lost; nor is modern mechanical knowledge adequate to raise the enormous masses of masonry used in their buildings.

ESTHER.

But how came the Egyptians to be so wonderfully advanced in knowledge?

MRS. F.

The physical position of Egypt was peculiarly favourable to the cultivation of the sciences. Their rich soil required little cultivation; and the two months during which the waters of the Nile covered the country, afforded a period of repose well calculated for study and meditation. As Egypt could not exist without canals, the cultivation of those sciences were necessary which relate to their construction. To determine the boundaries of property after the periodical inundations, the sciences of mensuration and geometry were requisite; and as it was equally important to calculate the exact period of their return, the Egyptians were led to the observation of the stars, and their clear sky was favourable to the progress of astronomy. Egypt abounded in mines of granite; and the working of these mines led to mineralogy, while the mode of conveying these enormous masses to the Nile required a knowledge of mechanics; and the practice of embalming, and of preserving living specimens of animals in their temples, forwarded the study of natural history.

• ESTHER. • • •

Then it is no wonder that the Grecian sages visited Egypt. Thales, I believe, went first, then

followed Pythagoras, and successively of almost all the sages of Greece.

FREDERICK.

What did they learn from the Egyptians?

MRS. F.

Most of the sciences which I have enumerated, as hydraulics, mechanics, architecture. In astronomy, the Egyptians had successively passed from the lunar to the solar year, until they had brought it to 365 days and a quarter. Geology was far advanced, for they knew that the earth had come out of the water. The Grecian sages would also receive instruction in mineralogy; for, independently of the granite quarries, the Egyptians had discovered emerald mines between Egypt and the Red Sea. In chemistry they were far advanced, for they had applied it to the arts and manufactures: it was a science much cultivated among the Egyptians, and its European name recalls its origin.

HENRIETTA.

How?

MRS. F.

The word chemistry comes from *chim*, which is

the Coptic name for Egypt.* In addition to the sciences we have already enumerated, we must not omit medicine, which had its birth in this country; and if a prince required a physician, it was to Egypt that he applied. Such was the ancient state of science among these wonderful people, but intestine divisions and foreign conquest caused its decline; and, under the dominion of the Romans, they had fallen into a state of ignorance which may be regarded as a just punishment for the secrecy with which they persisted in keeping their knowledge locked up.

ESTHER.

How interesting would be an account of the progress of science among the Egyptians!

MRS. F.

It would; but no written works of the ancient Egyptians have descended to us. The Egyptian priests appear to have entertained the same antipathy to history as have the Bramins, and probably for the same reason, viz. to retain their power.

ESTHER.

The modern Bramins assign as a reason for

* Cuvier, in the Reports of his last Lectures, from which source most of the above observations are derived.

refusing to write the history of their country, that the degenerate and wretched age in which they live is not worthy of being preserved in remembrance.

MRS. F.

All that has been transmitted to us of Egyptian history, is a list of some of their kings; but, in the absence of books, their monuments now supply us with a chronology of the ancient monarchs.

ESTHER.

How strange that so many monuments should remain in such a high state of preservation !

MRS. F.

Not altogether; as the causes which have enabled them to resist the ravages of time are evident. The granite of which they are built is most durable in its nature; and the climate of Egypt, where it never rains* ("Egypt's showerless lands"), is peculiarly adapted for their preservation. The dates of the principal monuments in Egypt may be placed between the years B. C. 1200 and 600.

* The prophet Zechariah (chap. xiv. verse 18.) speaks of the family of Egypt, "that have no rain."

ESTHER.

What an immense number of monuments to have been erected in so short a period !

MRS. F.

It must be recollected that Egypt is a long narrow valley, surrounded by deserts, and consequently incapable of extension. . By its situation, it was the passage of communication between every part of the civilised world, and therefore could not fail of becoming rich and prosperous. How were the Egyptians to employ these riches ? they had no use to which to apply them but the erection of public buildings and monuments ; and such we find was the case in a parallel country, viz. Palmyra, which is an oasis in the midst of a desert. The springs with which it is supplied rendered Palmyra a place of passage for the caravans. Hence its riches, which its inhabitants employed, like the Egyptians, in the accumulation of a number of monuments, even more astonishing than those of ancient Egypt. Modern history, also, affords us a similar instance, in the case of Genoa, which, limited in extent by the Apennines, reared ; during the period of its prosperity, that multitude of marble palaces which excite the admiration of the traveller. *

Cuvier.

ESTHER.

Pray, mamma, what is the Rosetta stone, which I hear so often mentioned?

MRS. F.

It is a stone which was discovered by the French at Rosetta, and was shortly after brought to this country. Upon it is an inscription in three characters, the Greek, Hieroglyphic, and the Enchorial, or native character of Egypt. Dr. Young succeeded in deciphering some of the hieroglyphic letters, and by his exertions, and the previous labours of two learned foreigners, the first insight was obtained into the hieroglyphic language, which Champollion and others have since so successfully prosecuted.

ESTHER.

How did Dr. Young proceed in his investigation?

MRS. F.

Observing that in the hieroglyphic inscription, there were occasionally a certain number of characters enclosed in a kind of oval, he discovered that these ovals occurred in the places where, in the Greek inscription, proper names were to be read, and by comparing these

characters with similar ones, in the other ovals, he came to the conclusion, that these hieroglyphics represented letters. Thus he would find that the same sign stood for the letter P in the name of Ptolemy, as in that of Cleopatra; that the same hieroglyphic formed the third character in the oval of Berenice, as that which stood last but one in the name of Cleopatra; whence he inferred that the hieroglyphic in question represented, in both names, the letter R. Thus did he gradually and cautiously proceed, until he had deciphered sufficient signs to lay the foundation of a hieroglyphic alphabet.

HENRIETTA.

Then hieroglyphics are only the same as the letters of our alphabet.

MRS. F.

The hieroglyphic writing consists of three kinds: —

1st, *Alphabetic* (or *Phonetic*, as it is called), when the hieroglyphic symbol stands for a sound or letter, like our alphabet.

2d, *Emblematic*; that is, when the hieroglyphic is an emblem or symbol of the thing represented, as if we were to draw a peacock, as a representation of Juno; an owl, instead of the word Minerva, and so forth.

3d, *Figurative*; that is, when the hieroglyphic is a representation of the thing itself, as if we were to draw a house instead of writing the word house, or were to substitute the figure of a crown for the word, &c.

ESTHER.

Had the Egyptians more than one symbol for each letter?

MRS. F.

Yes, generally several; consisting of objects, the initial letter of which, in the Egyptian language, was the same as the letter to be represented.

HENRIETTA.

As if we were to draw a hippopotamus, a horse, or a house, for the letter H; a cow, a cradle, or a cat, for the letter C.

MRS. F.

Exactly so. Now if Esther were to write her name in hieroglyphics, she might have an eagle, an egg, an elephant, or an eye for E.

MARY.

Then for S there would be a swan, a shell, a sheep, &c.

FREDERICK.

" A tiger, a tortoise, a thistle, or a turkey,

might stand for T. For H, Henrietta, has already given us some signs; E we have had before; and for R she should choose between a ring, a rhinoceros, a rabbit, and a rose. Now, Esther, we have completed your name.*

ESTHER.

What was the language of the ancient Egyptians?

MRS. F.

Coptic; and the discovery of this lost language opens a vast field of inquiry, and fills up many chasms in the history of Egypt.

ESTHER.

Is it true that the kings of Egypt who are recorded in the Bible, are portrayed in the paintings found by Rossellini and Mr. Wilkinson on the Egyptian monuments?

* It has not been thought necessary to enter into the omission of the vowels, or any of the other details of the construction of the hieroglyphic writing. The Egyptians had three modes of writing their language: — The Hieroglyphic: — The Hieratic, which, like the first, was confined to the priests, and which appears to have been a simple imitation of the hieroglyphic; in fact, a kind of short-hand, or quick way of writing it. — The Enchorial, or native character of the country, which appears to have been gradually derived from the other two, and by comparing them together, seems to be a kind of loose imitation of them.

MRS. F.

Yes; Pharaoh Necho, Hophra, and Shishak, are all to be seen; and the Jews themselves are clearly exhibited. The profiles of the figures in the monuments strikingly resemble those of the modern Jews; they have either hats or their black bushy hair, turned round by a red fillet. They wear sandals, the military petticoat, a baldric across one shoulder, a girdle to which is attached a short sword, and, when represented as engaged in warlike operations, they have the upper part of the body covered with a defensive coat, either of leather or of armour, and wearing over the whole a tippet, like the cape of a modern great coat. Under the kings of Egypt, contemporary with Moses, these Jews are represented as employed in the very act of slavery which Scripture describes, namely, making bricks. An Egyptian task-master superintends the work; and the bricks, according to their delineation, are precisely those which are found in walls constructed of bricks, the date of which is assignable to the era in question. Many more illustrations of Biblical record are afforded in the pictures given by Rossellini; and as the science gradually advances, more will be collected. The labours of Rossellini, and of our zealous countryman,

Mr. Wilkinson, are rapidly adding to our knowledge, and such a mass of facts is accumulating, as will enable us soon to construct a new history of the Egyptians, their chronology, their arts, their sciences, and manufactures.

CHAPTER V.

EXTINCT ANIMALS OF GREAT BRITAIN.

THE BEAVER FORMERLY A NATIVE OF GREAT BRITAIN. — BEVERLEY. — THE BEAVER PROTECTED BY LAW. — SKINS OF THE BEAVER AND THE MUSQUASH. — EXTINCT ANIMALS OF GREAT BRITAIN. — WOLVES, WHEN EXTERMINATED. — WOLVES OF NORTH AMERICA. — THE BEARS OF GREAT BRITAIN. — OF LAPLAND. — OF VALENTINIAN. — OF BERNE. — WILD BOARS. — WILD CATS. — HORSES OF CASSIBELAUNUS. — WILD CATTLE. — THE COCK OF THE WOOD. — THE DODO. — KANGAROOS AND EMUS. — FEAST OF ARCHBISHOP NEVILLE. — EGRETS. — PORPOISES. — THE PEACOCK. — VOW OF THE PEACOCK. — PEACOCK'S FEATHERS. — THEIR CRESTS. — FEATHER MANTLES OF THE SOUTH SEAS. — AMULETS OF THE KINGFISHER. — FEATHERS OF THE LYRE-TAIL PHEASANT. — HUMMING-BIRD MANTLE OF MONTEZUMA. — THE TROCHILUS AND THE CROCODILE. — LEECHES OF CEYLON. — THE LEECH A BAROMETER. — FROST OF 1829. — PEACOCK IN HIS PRIDE. — EXAGGERATION. — ANECDOTE OF PETRARCH. — VERACITY OF INHABITANTS OF PITCAIRN'S ISLAND. — OF THE FINS. — OF ALFRED. — OF DR. JOHNSON.

“ But the book of nature was before Minna, that noblest of volumes, where we are ever called to wonder and admire, even when we cannot understand.”

SIR W. SCOTT.

ESTHER.

MAMMA, in reading a tour through Wales, I find that a valley in Caernarvonshire is called Nant Frangon, or the Vale of Beavers. Were these animals ever natives of Great Britain?

MRS. F.

So it appears; but the value of their fur caused them to become scarce at the close of the ninth century, and in the twelfth, they were only to be met with in one river in Wales, and in another in Scotland. The town of Beverley (*Beaver field*) in Yorkshire takes its name from these animals, and three beavers are borne as the arms of the city.

HENRIETTA.

Is it true, that the beaver uses its tail as a trowel?

MRS. F.

No; this, like the story of the glutton enticing the reindeer to the tree where it is concealed, by throwing down the moss, of which the reindeer is fond, proves to be a fable, exploded by our arctic travellers.

ESTHER.

Beavers are found in parts of the Continent, but the European beaver does not erect villages and live in societies, like those of North America, it is generally a solitary animal, and burrows in holes by the side of rivers.

MRS. F.

In the old Scandinavian laws, we find that

the beaver was protected from injury by legislative enactment. The industrious beaver "hath his house like the husbandman," and if the beaver was killed, and his cell overturned, a fine of three marks was paid to the owner of the land. But the grim inhabitants of the wood were, by the same code, declared to be out of the protection of the law. "The bear and the wolf shall be outlaws in every place," — a phrase which illustrates the Saxon definition of an outlaw — "the bearer of the wolf's head."

ESTHER.

Captain Back informs us that 70,000 skins of the beaver are annually sent to England, but the Musquash or Muskrat (*Fiber zibethicus*) is usually substituted for this fur, and half a million of skins are yearly imported into this country for the hatters.

MRS. F.

And I understand, that the skin of the Pine Martin (*Mustela martes*) is also sent from North America, and sold here as the real sable.

HENRIETTA.

Were there not once many animals in Great Britain which are now extinct?

MRS. F.

Yes; the wolf, the bear, the pig, and several

Kind of birds, were all formerly wild in this country, but are no longer found so.

ESTHER.

Wolves were at one time, very common in England, as we learn from the tribute of King Edgar.

MRS. F.

But it is an error to suppose that these animals were extirpated in the reign of this monarch; they appear not to have been uncommon in the time of Stephen, as we find by the record of a grant to the monks of the Abbey of Fors, in Wensley Dale, Yorkshire, of pasturage and grass in the adjoining forest, but forbidding them to use any mastiffs to drive away the wolves. The last wolf in Scotland fell by the hand of Sir Ewen Cameron, about the year 1680; but this animal is said to have maintained its ground in Ireland, so late as 1710.

ESTHER.

Dr. Richardson states that the wolves of North America are so timid, that the simple precaution of tying a handkerchief to a branch, or of inflating a bladder and suspending it so as to wave in the wind, is sufficient to keep herds of wolves at a distance.

MRS. F.

They must be as great cowards as the grisly bear; a botanist relates, that he found the best way of getting rid of these animals, when they attacked him, was to make a rattling noise with his tin specimen box, upon hearing which they immediately decamped.*

ESTHER.

The bear was formerly found in Britain. In Wales it used to be regarded as a beast of chase, equal to the hare or the boar, and the last record of one being destroyed, is in 1057, when a Gordon, as a reward for his valour in killing a bear, was directed by the king to wear three bears' heads on his banner.†

MRS. F.

In Dr. Richardson's interesting work upon the animals of North America‡, I was reading, the other day, a most amusing account of the bear, the winter habitation of the animal, and the manner in which it is hunted. He tells us that the Laplanders hold the bear in such ve-

* See anecdote in Hooker's Botanical Miscellany, vol. i. p. 196.

† Pennant's British Zoology.

‡ Fauna Boreali-Americana.

operation that they never speak of it by its name, but designate it, in conversation, by the epithet of "the old man in the fur cloak." •

HENRIETTA.

I should like to read this account.

ESTHER.

Then I will find it for you this evening.

FREDERICK.

The Emperor Valentinian used to keep near his room two enormous pet bears, which he distinguished by the appellations of Innocence and Mica aurea (*Golden crumb*). These ferocious animals were his guards, and their cruel master would frequently indulge himself by witnessing the tortures and death of the wretched victims, whom he caused to be given them to devour. Their diet and exercise were carefully inspected by the emperor himself, and when "Innocence" had earned her discharge by a long course of service, she was again restored to the freedom of her native woods.*

MRS. F.

When I was at Berne, in Switzerland, I saw the bears which, you may have heard, are kept,

* Gibbon's *Decline and Fall*, chap. xxv.

at the public expense, in the trenches round the town. A bear is also borne as the arms of the city. But, to return to our British animals.

So late as the reign of Queen Elizabeth, pigs ran wild in Lancashire, in Cumberland, and in the Weald of Kent. Wild boars are mentioned, both in the ancient Welsh and English laws, as beasts of chase, reserved principally for the amusement of the king; and William the Conqueror punished with the loss of eyes, those persons who were convicted of hunting the wild boar without the royal authority. Beside the animals we have already enumerated, we may mention the wild cat, which was reckoned among the beasts of chase, and is still occasionally found in mountainous districts, and also the badger, now almost extirpated. The native horses are celebrated by Cæsar, who gives a most animated description of the dexterity with which they were managed, and deemed them so valuable, that he carried many of them to Rome. They must also have been exceedingly abundant at that period, to judge from the accounts of the numbers which Cassibelanus had in his army.

FREDERICK.

Are there not still wild cattle in England?

MRS. F.

The race of British wild cattle is still kept at Lord Tankerville's at Chillingham in Northumberland, and also at the Duke of Hamilton's: they are quite wild, and when one is to be killed, it is shot with a rifle.

FREDERICK.

What colour are they?

MRS. F.

They are of a cream colour with red ears, not unlike, I believe, the cattle that we see in Italy.

ESTHER.

There are also great many British birds which are now extinct.

FREDERICK.

Yes: the cock of the wood, for instance: I believe it has not been shot for many years, but I have often seen them in the shops in London. They are brought from Norway. What a magnificent bird it is; but it must be very easy to shoot, it is so large.

MRS. F.

Not so easy as you imagine, Frederick, for the cock of the wood or capercaillie is so extremely

shy, that it requires some address to get within shot of it. I have heard the shooting of this bird in Bavaria described. The sportsmen go into the wood at night, and gently steal towards its haunts, which are the tops of the highest pines. In the grey of the morning, the cock of the wood begins to crow, and, in the act of crowing, shuts its eyes; this is the moment seized by the sportsman to creep towards it, for the bird is easily alarmed at the slightest movement, and flies off if approached at any time but when it is crowing, and consequently off its guard.

ESTHER.

Talking of extinct birds reminds me that, when I was at the British Museum, I saw the picture of the Dodo.

MRS. F.

The most striking instance of extirpation, occurs in this remarkable bird, of which a foot and a head at Oxford, and a leg, with the painting to which you allude, in the British Museum, are all that remain to attest its existence. The Dodo (*Didus ineptus*) is first mentioned as having been seen, by the Dutch when they landed on the Isle of France, which was then uninhabited. The bird, as it appears by the accounts and from the portrait preserved of it, was a large, heavy, stupid animal, with

short wings incapable of flight, and so fat that it could hardly walk; it was therefore, soon extirpated, owing to the facility with which it was taken. From the representation given of the Dodo, it was larger than a turkey-cock, and is stated to have weighed from forty-five to fifty pounds.

ESTHER.

I have read that the Kangaroo is not so common as it used to be in New Holland.

MRS. F.

No; the kangaroo and the emu are gradually retreating into the interior of Australia, and the general cultivation of that country will probably soon lead to the extirpation of both; but we have made a great digression from our original subject—the extinct birds of Great Britain. The crane is now become rare, the bustard has disappeared, and the egret is but a rare visitant.

ESTHER.

I think the egret must have been destroyed in consequence of the numbers which were eaten at feasts. In the celebrated entertainment given by Neville, Archbishop of York, at his installation*, we find that a thousand

* 1470.

egrets were among the dishes served up to the guests.

HENRIETTA.

What a pity! the egret is such a beautiful bird; but why is it so called?

MRS. F.

Egret comes from the French *aigrette*, a name given to these birds, says a French writer, "*à cause de l'aigreur de leur voix.*"

ESTHER.

In the same feast, there are a great many other curious animals mentioned.

HENRIETTA.

I hope, Esther, you are not going to give us the bill of fare.

ESTHER.

No, Henrietta, because I am aware that you have often read it; but, nevertheless, it is interesting, and curious, as showing us what animals were then eaten as food.

MRS. F.

Among other things, we find eight seals and four porpoises.

HENRIETTA.

Delicate appetites they must have had in those days !

MRS. F.

The porpoise appears on another even more curious occasion, and that is in 1390, when a roasted porpoise, boiled in broth, and a dolphin were served up by way of refreshments at a ball.

ESTHER.

What is the derivation of the word porpoise ?

MRS. F.

It is a corruption of the Latin *porcus piscis* or hogfish; a name by which it is also designated in other languages. The French *marsouin* and the German *meerschwein* have both the same signification. But to return to Neville's feast: we find in the bill of fare, a hundred curlews, and two hundred and four bitterns, two hundred cranes, and no less than a hundred peacocks.

HENRIETTA.

What a slaughter of these beautiful birds ! I wonder who first thought of eating the peacock.

MRS. F.

The idea is attributed to Hortensius, a Roman, and it soon became so fashionable a dish, that all people of fortune had it at their tables. The peacock was first made known to Europe by the wars of Alexander, and the estimation in which this bird and the pheasant were held, was transmitted by the Greeks and Romans, to their Gothic conquerors and their descendants. Knights vowed by the peacock, or *poivin*, as it was also called. Peacocks and pheasants were deemed their peculiar food; and whenever the vow of the peacock or pheasant was made, it was attended with solemn ceremonies. The bird was brought into the assembly by ladies, on a gold or silver dish; it was served up with the feathers on, and he was regarded as honoured, in no common degree, to whom was assigned the post of carving and distributing the bird at great entertainments.

HENRIETTA.

How could the bird be roasted in its feathers, aunt?

MRS. F.

“Esther, give me the first volume of Mills’s “History of Chivalry,” and I will read the

account which he extracts from a French author* : —

“ Instead of plucking the bird, skin it carefully, so as not to damage the feathers, then cut off the feet, stuff the body with spices and sweet herbs, roll a cloth round the head, and then spit your bird. Sprinkle the cloth all the time it is roasting to preserve its crest. When it is roasted, tie the feet on again, remove the cloth, set up the crest, replace the skin, spread out the tail, and so serve it up. Some people, instead of serving the bird up in feathers, carry their magnificence so far as to cover the peacock with leaf gold. Others have a very pleasant way of regaling their guests. Just before they serve up, they cram the beak of their peacock with wool, and the bird instantly vomits out flames like a little volcano.”

ESTHER.

Our ancestors delighted in “a merrie conceite” at their feasts; and, among other directions in their books, how to surprise and amuse the guests, we find instructions to serve two pies, the one filled carefully with live frogs, and the other with live birds. On lifting the lid of these pies, the frogs were to hop out, and make

* Le Grand. *Histoire de la Vie Privée des François.*

“the ladies to skip and shriek;” and the birds being liberated, were to fly at the candles, / extinguish the light, and thereby “cause much delight and pleasure to the whole company.”

HENRIETTA.

Then our nursery song of the—

“Five and twenty blackbirds baked in a pie;
When the pie was opened the birds began to sing,
What a dainty dish was this to set before the king.”

relates to the amusements of our forefathers.

MRS. F.

Undoubtedly. So constantly was the peacock, as the object of their solemn vow, kept in the recollection of the knights of chivalry, that for this purpose, the image of the bird was hung up in the place where they exercised themselves in the management of their horses and weapons.

HENRIETTA.

I am surprised that the peacock's feathers are not used as ornaments; they are so beautiful.

MRS. F.

“They were used so formerly.” The feathers

* Tavernier describes the peacock throne of the Great Mogul to be most gorgeous.

of the peacock, arranged in the form of the tail of the bird, was a favourite decoration of the rooms of the middle ages; and the feathers of the peacock and the ostrich were not only used by the ladies for fans, but the tail feathers also formed crowns with which were decorated their favourite troubadour. Peacocks' crests were among the ornaments of the kings of England*, and a mantle embroidered with peacocks' feathers, was sent by pope Paul III. as a present to Pepin.† Do you recollect Wilson's description of a dress of peacocks' feathers, in his Isle of Palms? —

“Of peacocks' plumes her glancing tirc,
 All bright with tiny suns,
 And the gleamings of the feathery gold,
 That play along each wavy fold
 Of her mantle as she runs.”

FREDERICK.

I have seen the feather mantles from the South Sea Islands which were brought to England by Captain Cook.

MRS. F.

They are made from three kinds of birds, two of which belong to the *Nectarinia* (*N. niger* and *Byronensis*) or honey-suckers, a genus nearly allied to the humming-bird.‡

* Pennington. † Mill's History of Chivalry.

‡ The other bird is *Drepanis vestiarius*.

ESTHER.

The Ostiacks, a Siberian tribe, make of the skin, beak, and claws of the kingfisher, an amulet against misfortune; and in the South Seas, this bird is held in equal veneration.*

* MRS. F.

The aborigines of New Holland, in addition to the feathers of the emu, decorate their



THE LYRE-TAILED PHEASANT.

greasy locks with the splendid and picturesque feathers of the lyre-tail pheasant (*Menura su-*

* Dictionnaire des Sciences Naturelles.

perba, Latham), of which I showed you a stuffed specimen the other day. This curious bird is fast decreasing in New Holland; it is swift of foot, but heavy in flight, and seldom flies into trees except to roost.*

HENRIETTA.

The humming bird's feathers would make a splendid dress, I should think.

MRS. F.

They were used for the mantle of Montezuma; and the Indian ladies wear the humming bird as an ornament in their ears.†

ESTHER.

What is the food of the humming-bird?

MRS. F.

The saccharine juices of flowers, and small insects. These birds are found in summer, as far north as Hudson's Bay and Canada. Their Indian name signifies "beams or locks of the sun," — a very appropriate designation for these glittering little creatures.‡

ESTHER.

What is the story, mamma, about the trochilus or humming-bird entering into the jaws

* Bennett's Wanderings in New South Wales. The tail of the *Menura*, is thirteen inches long; the whole length of the bird being thirty-one inches.

† Bullock's Mexico.

‡ Ibid.

of the crocodile to extract the leeches in its throat?

MRS. F.

The anecdote is related by Herodotus, and is firmly believed in Java.

FREDERICK.

I never heard of it, aunt.

MRS. F.

Herodotus states* that the crocodile's throat is always full of leeches, and that all the birds and beasts avoid the crocodile except the trochilus, which, from a sense of gratitude, it treats with kindness. When the crocodile leaves the water, it reposes itself upon the sand, and generally towards the west, with its mouth open, the trochilus entering its throat destroys the leeches, in acknowledgment for which service, the crocodile never does the trochilus injury. Such is the statement of Herodotus; but to what genus belongs

The bold bird upon the banks of Nile,
That picks the teeth of the dire crocodile," †

is a question which has been much disputed.

* Euterpe.

† Young.

ESTHER.

I have read that leeches infest the alligator.

MRS. F.

Yes; and the bird called the Green Tody (*Todus viridis*) is related to perform the office of extracting for the alligators of the West Indies the gnats and flies which adhere to their glutinous mouths. In this case we know which is the

"Puny bird that dares with teasing hum
Within the crocodile's stretch'd jaws to come."*

but, with regard to the Egyptian crocodile, some assign the office to the lapwing, others to the Egyptian plover, and Mr. Madox states having often seen a bird about the size of a dove which tradition reports to be in the habit of entering the mouth of the crocodile, when basking in the sun on a sand-bank; and that, having finished its work, the crocodile permits it to fly away. Thus it appears that some bird does perform the office, and that the statement of Herodotus is founded on truth.

ESTHER.

Talking of leeches reminds me of an account I have been lately reading of the terrestrial

leeches of Ceylon, which appear to be the pest of the island. They infest swampy grounds and woods, especially in rainy seasons, and are more often to be found upon leaves and stones than in the water. They easily penetrate through the light clothing worn in that climate, and it is impossible, in rainy seasons, to escape them when riding in the woods. Fifty will attack one person, and no sooner does an individual stop than, as if they had seen or scented him from afar, they crowd towards him from every quarter. The Dutch lost several men from the wounds of these animals in their march across the island, and horses are perfectly unmanageable when traversing the woods in which they are found.

MRS. F.

What formidable animals they must be !

ESTHER.

Mrs. Clifford keeps a leech in a glass as a barometer, and she tells me that she finds it an excellent guide to show her the changes of the weather.

FREDERICK.

How does she manage it ?

ESTHER.

She confines a leech in a large phial three parts filled with rain-water which is changed

twice a week. In fair and frosty weather, the leech lies motionless, curled up at the bottom of the bottle, but prior to rain or snow, it creeps up to the top, where, if the rain be heavy and of some continuance, it remains a considerable time; if trifling, it quickly descends. Should the wet weather be accompanied with wind, it darts about its habitation with great celerity, and seldom ceases until it begins to blow hard. If a storm of thunder or lightning be approaching, it becomes exceedingly agitated, and moves in convulsive starts at the top of the glass. It is remarkable that although neither the sky nor the barometer indicate any change of weather, yet if the leech changes its position and moves in a desultory manner about the phial, so surely will the weather change within less than six and thirty hours.

MRS. T.

The motions of the leech chiefly depend on the fall and duration of the wet, and on the strength of the wind. They are not generally susceptible of extremes of temperature, although in the celebrated frost of January, 1829, all the leeches of our apothecary were, he told me, frozen to death.

ESTHER.

That was the same severe frost which killed all the gold and silver fishes in the stone basin

in the flower garden; the poor little things were frozen quite fast in the ice, and looked when the gardener dug them out, just like fruit in jelly, for I know nothing to which I can better compare them.

MRS. F.

It was certainly one of the severest frosts we have had in our country for many years.

ESTHER.

Henrietta, we have wandered so far from the subject, that it is hardly worth referring to it again, but, when we were talking of peacocks, I forgot to ask you if you knew what a peacock, when represented with his tail spread, is termed in heraldry?

HENRIETTA.

What is it, Esther?

ESTHER.

It is called, "a peacock in its pride."

MRS. F.

And the pelican when in its nest feeding its young, is termed "a pelican in its piety." The inhabitants of Upper Egypt, call the pelican, the "water camel*"; it was a favourite bird of

* Sonnini.

the ancients, and was as much venerated by them as the emblem of maternal affection, as was the stork, the representative of filial piety.

HENRIETTA.

Aunt, I wish you would have the kindness to give us an account of the stork, for I often hear of its wonderful qualities, but know nothing about them.

MRS. F.

With pleasure, Henrietta, but not this morning, for we must begin our studies. I intend that you shall all read some poetry, as I am anxious to improve your style of reading. What shall it be, Esther?

ESTHER.

Suppose we select Shakspeare's Julius Cæsar.

HENRIETTA.

Oh! I have read that hundreds of times, and know all the speeches by heart.

MRS. F.

Gently, Henrietta; how can you say that which is so untrue?

HENRIETTA.

I only exaggerated a little, aunt.

MRS. F.

But, supposing it to be but a little, why exaggerate at all?

HENRIETTA.

Oh, I did not see much harm in it. I am sure I ~~would~~ never tell a direct falsehood.

MRS. F.

And, what then, do you call this? Believe me, Henrietta, there are no such nice gradations as you would wish to intimate. Either we say what is true or what is false, and any thing said with an intention to deceive must be a falsehood, be the motive for asserting it what it may.

HENRIETTA.

Well, aunt, I never thought so seriously of exaggeration before.

"Mamma," said Esther, who with her usual kindness, endeavoured to turn the subject from the offence, "I was reading yesterday an anecdote of Petrarch, which shows how celebrated he was for his sincerity. A disturbance having taken place in the family of Cardinal Colonna, in

whose house Petrarch was then staying, the Cardinal required that every one present should swear upon the Bible to reveal all they knew respecting it. When Petrarch came forward to tender his oath, the Cardinal said, 'No, Petrarch, your *word* is sufficient.'***

MRS. T.

And what guileless simplicity, and virtue reigns among the people descended from the mutineers of the "Bounty," now residing in Pitcairn's Island. Capt. Beechey says, "they are so accustomed to take what is said, in its literal meaning, that irony was always considered a falsehood, in spite of explanation. They could not see the propriety of uttering what was not strictly true for any purpose whatever." And Mr. Laing, in his Travels in Norway†, bears a like testimony to the veracity of the Finlanders; he says it is proverbial in Norway, that "a Fin never says what is not true, and never takes what is not his own." Would, indeed, that such an inflexible regard to truth were more universal! but, unfortunately, falsehood is so common, as to cause the names of those who have been remarkable for their sincerity to be recorded in history. Xenocrates was celebrated for his love of truth;

* Dobson's Life of Petrarch.

† p. 417.

so was our English monarch, "the truth teller," whom a modern poet designates, as

"—— the King that ne'er betray'd his word,
Alfred, the teller of the truth."^{*}

FREDERICK.

And I recollect that, in Cornelius Nepos, it is mentioned of Cicero's friend Atticus†, that he "never deviated from the truth, nor would associate with any one who had done so."

MRS. F.

The motto of Tameilane was, "I am sincere and plain." Let that also be yours, Henrietta; and never let the love of telling a good story betray you beyond the bounds of veracity. I am much of the opinion of Dr. Johnson (than whom a more scrupulously exact person never lived), that "it is more from carelessness about truth, than from intentional lying, that there is so much falsehood in the world."‡ Let us, then, be watchful of the slightest beginnings of evil, for there is no knowing to what habits of insincerity the first deviation from truth may lead. As Sir Walter Scott happily expresses it: —

"Oh, what a tang'd web we weave,
When first we practise to deceive."

* Collingwood's Alfred, b. ix.

† Titus Pomponius, surnamed "Atticus," from his critical knowledge of the Greek language.

‡ Boswell's Life.

CHAPTER VI.

THE STORK.

THE STORK — ITS FOOD — CAUSE OF ITS VENERATION IN EGYPT —
 IN THESSALY — ROMANS REFUSE THE PRIORSHIP TO IT IN
 SYRIA — STORKS NEST ON THE TEMPLE OF CONSTANTINE — STORKS
 AT CONSTANTINOPLE — HORRORABLE — HOSPITAL FOR STORKS AT
 FEZ — STORKS AT ILKESFOIS, IN DENMARK, FRANCE AND
 HOLLAND — MIGRATION OF THE STORK — ITS VOICE — MILTON
 AND THOMSON'S DESCRIPTIONS — SUPERSTITIONS RESPECTING THE
 STORK — THE STORK OF AQUILIA — STORKS AT THE SIEGE OF
 VIENNA — MAERNAI AFFECTION — THE STORK OF DEIFT — ITS
 FIDELITY — ORIGIN OF ITS AFFECTION — GIVES THE
 NAME TO A CREEK LAW — QUOTATION FROM BEAUMONT — STORK
 AND STARKIE — CANTING ARMS

Who bid the stork, Columbus-like, explore
 Heavens not his own, and worlds unknown before?
 Who calls the council? — Sates the certain day?
 Who forms the phalanx, and who points the way?

POPE.

HENRIETTA. . . .

Is you are at leisure this afternoon, aunt,
 will you have the kindness to give us your
 promised account of the stork?

MRS. F.

With pleasure. The white stork has long
 been celebrated for its familiarity with man, and

has become, in consequence, the object of his affection and veneration. In all ages, it has been regarded with peculiar favour, partly on account of its services in the destruction of noxious reptiles, partly in consequence of its mild disposition, its harmless habits, and the moral qualities with which mankind has loved to invest it.

HENRIETTA.

What is the food of the stork?

MRS. F.

Lizards, snakes, mice, moles, insects, and frogs; toads, it is asserted, it will never touch.* The abundance of these animals in a marshy country like Egypt readily accounts for the veneration entertained towards their destroyer; and we consequently find that the reverence paid to the stork by the Egyptians was inferior only to that which they bestowed upon the ibis. This veneration has been perpetuated in the East, and has extended to the different countries of Europe.

HENRIETTA.

Did the Greeks and Romans revere the stork?

* Linnaeus.

MRS. F.

Yes; in Thessaly, the person who killed a stork was punished by death. The Romans never ate these birds, and they built their nests in safety, until the time of Augustus, when one of the candidates for the pretorship entertained the people with a dish of storks. But the people revenged the death of the poor birds, by refusing the pretorship to their murderer. In the midst of the noise and bustle of the Imperial City, a stork built its nest on the Temple of Concord, and, instead of disturbing the bird in its position, the circumstance was considered so remarkable; that it was perpetuated in the medals of Adrian.

ESTHER.

The Mahommedans equally revere this bird.

MRS. F.

Yes: they deem it sacrilegious to put one to death; and Lady Mary Montague informs us that, in Constantinople, the storks are suffered to build in the streets; and the Turk who owns a house which a stork has selected for its nest, is supposed to be the object of peculiar favour and prosperity. Mr. Hobhouse, in his "Travels in Albania," describes a village (Bournabat) which contains an open space, surrounded by a few shops and shaded by large and aged cedar trees,

whose branches are hung with storks' nests. These birds were stalking about on the flat roofs of the houses, and even in the streets, perfectly unmolested. Such, indeed, is their attachment to the habitation of man, that Mr. Hobhouse says, he does not recollect ever having seen their nests in any tree at a distance from some human dwelling. They build even in the tops of mosques and uninhabited houses.

ESTHER.

Storks always return to the same place, and rebuild their nests, if they have been destroyed. They are welcomed on their arrival with the greatest joy, and the stork itself is said to manifest equal delight on returning to its old habitation.

MRS. F.

In Ali Bey's Travels, it is mentioned, that in Fez a richly endowed lunatic asylum is maintained out of funds originally bequeathed "for the purpose of assisting and nursing sick cranes and storks, and of burying them when dead."

HENRIETTA.

How very curious!

MRS. F.

The stork builds, as you know, principally

upon houses, churches, and old buildings.. In the ruins of Persepolis, almost every pillar is said to be surmounted by a stork's nest. *

ESTHER.

In many countries of modern Europe, the stork is held sacred.

MRS. F.

Yes; in Denmark, it is protected from molestation. In Spain, particularly at Seville, these birds build on the towers of the churches; in France, wheels used to be placed upon the top of the chimneys, for the stork to construct its nest upon, a practice which is still continued in many countries; but, I think, you can all of you tell me the European nation by whom the stork is held in the highest veneration. — “The Dutch,” replied the whole party at once.

MRS. F.

The protection which the storks receive in Holland is but a fair return for the services they confer upon the inhabitants, by devouring the immense quantities of reptiles which swarm in their fertile and marshy soil. They build in the towers, in their trees, in their chimneys, and are not only never disturbed, but are even invited

* Chardin.

to settle: an old cart-wheel, or some other contrivance, is sometimes placed upon a new hotise expressly to induce them to come. The arms of the Hague, are a stork; and numbers of these birds may be seen walking about the fish-market of this city, where a small house, like a dog's kennel, has been built for them. Flocks of storks are seen assembling over the streets to concert measures for their periodical flight. We learn from the prophet Jeremiah* that "the stork in the heaven knoweth her appointed time;" and these birds are remarked to know precisely, and strictly to keep within a very few days, the appointed period of their arrival and departure. They leave Holland about the middle of August, and return in the month of May.

ESHER.

"They are very systematic in their movements, are they not?"

MRS. F.

Mr. Macgill, in his 'Travels†, gives an account of their proceedings. He says, that at Bagdad, they begin about the middle of June, "to teach their young ones to fly, and about the end of the month they gradually lengthen their flights,

* Chap. viii. verse 7.

† In Turkey, Italy, and Russia.

and are seen to go away in the morning early, and not to return until the evening: these excursions they always perform in three or four squadrons or divisions, and in a very regular manner. About the middle of July, they all combine about two hours before sun-set, in three or four divisions; they then soar higher than usual, and make several circuits around the city and the adjacent country. This exercise they repeat daily with such regularity and seeming obedience to their chief who always is single and foremost, that it delights and surprises every beholder. At length," continues Mr. Macgill, "the 25th of July arrived, the day on which they took their final departure for this year. Early in the morning, they all collected and formed themselves into four divisions, and flew, or rather sailed, round the city, very leisurely, and not very high; then continued hovering some time near together, as if in consultation; and about eight in the morning, they flew straight away swiftly to the north-west. The storks pay an annual visit to Turkey; they arrive in vast numbers about the middle of March, and always in the night. They arrange their progress very systematically; they send forward their scouts, who make their appearance a day or two before the grand army, and then return to give in their report; after

which the whole body advances, and on its passage, leaves during the night its detachments to garrison the different towns and villages on their way. Early in October, they take their departure in the same manner, so that no one can know from whence they come or whither they go. They are known in the night-time to leave all the villages, and have been seen in the air like immense clouds. They leave none behind but those who, from infirmity or accident, are unable to fly. A person, who, at the season of their departure, was in the habit of coming from the interior, told me, that on his journey the year preceding, he had seen thousands and hundreds of thousands of them near the banks of a river, and that they annually assemble there; and when the general sees that his whole army is collected, he, at a given moment, sets them in motion, having a detachment, no doubt, to bring up the stragglers."

ESTHER.

The stork, when it leaves Holland, emigrates to Africa, Egypt, and Palestine. August is the month of its departure.

MRS. F.

The ancients imagined that the stork had no tongue, as a peculiar chattering noise made

with its beak is the only sound it utters; and the traveller in his walks amidst the ruins of ancient cities, is often awakened from his reverie by the loud chattering of one of these domestic birds perched on the fragment of a column, or on the shed of the solitary shepherd.

ESTHER.

But when the stock takes their flight, it is in solemn silence.

MRS. F.

Yes; and in Holland they always start with a north wind, in order to facilitate their southern flight. With their heads stretched forwards, their long legs extended behind, and apparently serving as a rudder, the storks take their lofty flight, and, rising immediately into the air, soon disappear from the view. Milton well describes their proceeding:—

“Part loosely wing the region, part, more wise,
In common, ranged in figure, wedge their way,
Intelligent of seasons, and set forth
Their airy caravan; high over seas
Flying, and over lands, with mutual wing
Easing their flight.”

ESTHER.

And, Mamma, I recollect Thomson's description.

MRS. F.

Then repeat it to us, Esther.

ESTHER.

"The stork assembly meet, for many a day
Consulting deep and various, ere they take
Their arduous voyage through the liquid sky,
And now, their route design'd, their leaders choose."
Their tribes adjusted, clean'd their vigorous wings,
And many a circle, many a short essay,
Wheel'd round and round, in congregation full
The figured flight ascends, and, riding high
The aerial billows, mixes with the clouds."

MRS. F.

Among other superstitions, it was thought that storks would never live except in republics ; a ridiculous idea, that one is surprised could have been so long entertained in opposition to general experience.

ESTHER.

"In augury, the appearance of the stork foretold union and concord.

MRS. F.

And its departure, in times of calamity, was considered the worst of omens. Esther, give me Gibbon, and I will read you an interesting anecdote of the account to which Attila turned this popular belief, when he invaded Italy and besieged Aquileia, with an innumerable host of

barbarians. Unskilled in the methods of conducting a regular siege, three months were consumed without effect, when "the want of provisions and the clamours of his army compelled Attila to relinquish the enterprise, and reluctantly to issue his orders, that the troops should strike their tents the next morning, and begin their retreat. As he rode round the walls, pensive, angry, and disappointed, he observed a stork preparing to leave her nest in one of the towers, and to fly, with her infant family, towards the country. He seized, with the ready penetration of a statesman, this trifling incident which chance had offered to superstition; and exclaimed in a loud and cheerful tone, that such a domestic bird, so constantly attached to human society, would never have abandoned her ancient seats, unless those towers had been devoted to impending ruin and solitude. The favourable omen inspired an assurance of victory; the siege was renewed and prosecuted with fresh vigour: a large breach was made in the part of the wall from whence the stork had taken her flight; the Huns mounted to the assault with irresistible fury; and the succeeding generation could scarcely discover the ruins of Aquileia."*

* Gibbon, chapter 35.

HENRIETTA.

Thank you for this story.

MRS. F.

I met, in reading the other day, another instance of a favourable omen being derived from the flight of the stork. It occurred during the memorable siege of Vienna by the Turks, in 1683, when the great Sobieski, of whom we were reading in Mrs. Markham's History of Poland, so highly distinguished himself by his valour and moderation. At a time when the inhabitants of Vienna began to despair, the fortunate omen of eight storks flying from the adjacent mountains of Calenberg, and settling upon the city, revived, for many days, the drooping spirits of the besieged.*

ESTHER.

"The stork is a very melancholy-looking bird.

MRS. F.

True; but it is very mild and gentle in its disposition, and has been even known to join children in their games. The stork is almost as proverbial for its love of its offspring, as it is celebrated for its filial piety. Both parents are never absent from the nest at the same

* Salvandy, Histoire de Pologne, tome iii.

time; the mother does not leave its young until they are of an age to defend themselves, and, when they begin to fly, she carries or supports them with her wings, and prefers death to deserting them when in danger.

• ESTHER. •

Yes, Mamma, you have often shown me a picture, and related to me the story of the stork of Delft, which, when the town was on fire,* after having tried in vain to carry off her young, suffered herself to be burnt in the nest with them, rather than leave them alone to their fate.

• MRS. F. •

We now come to the last and most celebrated characteristic of the stork—its filial piety; and although many of the anecdotes related are perfectly incredible, yet there must be some foundation for a belief so universal in all ages, and among all nations. The people of Tonningen in Denmark assert that, at the time of the return of the storks in spring, it is not uncommon to see several of the old birds which are tired and feeble with their long flight, supported at times on the backs of the young; and the peasants speak of it as a certainty,

• In 1536.

that many of the infirm are, when they return to their homes, laid carefully in the old nests, and cherished by the young birds which they had reared with so much care the spring before. The stork is also said to feed its parents when they are old and unable to provide for themselves. In short, endless are the stories related of this bird, many indeed difficult of belief; yet it would appear that mankind have in every age concurred in bearing testimony to the filial piety of the stork. Its very name in Hebrew signifies *mercy* or *piety*; and the English appellation *stork* is said to be derived from the Greek *storge*, which is often used for natural affection. Indeed the law among the Greeks, obliging children to maintain their parents when in poverty, bears the name of this bird, as high a tribute as could be imagined to its filial devotion.* As Beaumont:

"The stork's an emblem of true piety;
Because, where a wretch has seized and made his dam
Unfit for flight, the grateful young one takes
His mother on his back, provides her food,
Repaying thus her tender care of him,
Ere he was fit to fly."

ESTHER.

"I have seen the stork borne as a crest upon a carriage; but I do not know by whom."

* See Dictionnaire des Sciences Naturelles, Buffon, &c., for the above account.

MRS. F.

I think it is by a Cheshire family of the name of Starkie.

ESTHER.

Then they have what is termed, *canting* arms.

HENRIETTA.

And what are they?

MRS. F.

Esther shall tell you another time, Henrietta; for we must now take our walk.

CHAPTER VII.

ON HERALDRY.

CANTING ARMS. — HORSE-SHOES OF THE FERRERS. — MANOR
HELD BY THE SERVICE OF SHOEING THE KING'S PALFREY. —
MULES OF NERO AND TOPPÆA. — EMBASSY OF LORD HAY. —
THE GERMAN EAGLE. — PAPAL TIARA. — CARDINAL'S HAT. —
IRON CROWN OF THE LOMBARDS. — NAPOLEON'S BEES. — BAR-
BERINI. — STANDARD OF ST. MARTIN. — ORIFLAMME OF ST.
DENIS. — DANEBROG. — CARROCCIO OF THE ITALIAN REPUBLICS.
— BATTLE OF THE STANDARD. — ELEPHANT TOWER OF FRE-
DERIC II. — ELEPHANT OF THE CHINESE. — UNION FLAG. —
ST. GEORGE OF ENGLAND. — ENGLISH TITLES. — SONS OF
VISCOUNTS. — BLAZON, DERIVATION OF. — ACCOUNT OF DUVAL.

‘ Round which was seen, on ev’ry side,
Of birth and heraldry the pride;
Old ancestors in order hung,
And coats of arms between them strung.”

KEATE.

HENRIETTA.

ESTHER, you kindly promised to tell me this
morning what *canting* arms are.

ESTHER.

Arms, whose figures allude to the names or
professions of the beare, are so termed in
heraldry; such, for instance, are three herrings
which are borne by a family of the name of
Herring; three covered cups by the Butlers;

three anvils by the Smith family; three kingfishers by the Fishers; an elephant by the Elphinstones; and a frazier, that is, a strawberry plant (*fraisier*), which is borne by the Frazers. I could mention many more instances; but these which occur to me, at the moment, are sufficient to explain my meaning.

HENRIETTA.

Thank you.

MRS. F.

There is one other example of canting arms which I recollect, and that is the six horse-shoes which are still borne in the arms of the Ferrers family, who are descended from William de Ferrers, a Norman, who came over in the train of William the Conqueror, and who is supposed to have been the inspector of the farriers of the army, a class of individuals who derive their appellation from the French *ferrière*, a bag of instruments used in shoeing horses.

FREDERICK.

Did the English shoe their horses before the Conquest?

MRS. F.

It appears that they did, for Welbeck in

Nottinghamshire was held, before that period, by an old Saxon tenant, by the service of "shoeing the king's palfrey on all four feet, and with the king's nails, as oft as the king should lie at his manor of Mansfield; and if he should lame the palfrey, then he should give the king another palfrey of four marks price."

FREDERICK.

Nero's mule wore silver shoes.

MRS. F.

Yes, when he went short journies the mules which drew him were always thus decorated, while those of his wife Poppa had shoes of gold. But the most modern instance of such foolish extravagance occurs in the splendid embassy of Lord Hay to the French court in 1616, during the reign of James I. Among other acts of waste, we find it recorded, that on his public entry into Paris, he had his horse shod with silver shoes, slightly tacked on; and, whenever he came opposite to the balconies where eminent persons were seated, his horse prancing flung away his shoes, which were immediately scrambled for by the surrounding mob. One of his train then re-shod the horse with fresh shoes, which lasted until Lord Hay came to the next

troop of grandees, when the same ceremony was repeated.

ESTHER.

What useless, ostentatious parade!

HENRIETTA.

Aunt, as we are talking about heraldry this morning, I should like to ask you to explain a few things to me which I do not understand. One is, the reason why the German eagle has two necks?

MRS. F.

The cause is this: — An eagle displayed, sable, as the heralds term it, is the original banner of Germany; and, when Romania was added to the empire, the arms of that kingdom being exactly the same, the eagles were united into one body, leaving the two necks, as they are now borne in the German arms.

HENRIETTA.

Thank you; and now there is another question which I wish to ask. Why is it that the pope wears a triple crown?

MRS. F.

The triple tiara is supposed to indicate that the pope is sovereign priest, supreme judge,

and sole legislator among Christians.* It was Boniface VIII. (1297), who first encircled his cup with a coronet; Benedict II. (1335) added another; and John XXII. (1411) completed the present tiara, by adding a third. But can any of you tell me why the cardinals wear a red hat?

ESTHER.

No, mamma.

MRS. F. p "

It was enacted by Innocent IV. that they should wear a hat of that colour, to signify that they who entered the order ought to be ready to expose themselves, even to the shedding of blood, in defence of ecclesiastical liberty.

ESTHER.

There are seventy cardinals, are there not?

MRS. F.

Yes, they never exceed that number. Of course you know that the pope is elected by the cardinals; but perhaps you are not aware, that it is not necessary to be a cardinal in order to be raised to the papal dignity; the present pope, Gregory XVI., for instance, was only a Carmelite monk when he was elected.

ESTHER.

Mamma, when you were in Italy, did you see the celebrated iron crown of the Lombards?

MRS. F.

I did: it is preserved in the cathedral of Monza, near Milan; and it is not shown but by a special order. It is inclosed in a cross, which is carried in procession once a year, with great ceremony; but, in the sacristy of the cathedral there is an exact model of the crown, which the visitor can examine more leisurely.

ESTHER.

Is the crown entirely of iron?

MRS. F.

No, this is a common error arising from its usual appellation of "the iron crown." The crown itself is a broad hoop of gold which is about a foot and a half in circumference, ornamented with enamel and precious stones. Within this hoop is an iron circle of about a quarter of an inch in width, said to be made from one of the nails of the cross; and it is from this circle that the crown derives its name.*

* The other two nails of the cross are said to be preserved, one in the high altar at Milan, and the other at Rome.

The iron crown was used at the coronation of the Lombard kings, and, from the time that Leo III., crowned Charlemagne, Emperor of the West, it was arranged that the chiefs of the Empire should henceforth receive the golden crown from the hands of the Pope, after having been invested with the silver crown of the kingdom of Germany, at Aix la Chapelle, and the iron crown of the Lombards, at Milan.

LSHLR. f

Was not Napoleon invested with the iron crown?

MRS. I.

Yes, but in a different manner from his predecessors. Napoleon placed it himself upon his own head, saying, "Heaven has given it to me, beware who touches it."

ESPIER.

What was Napoleon's reason for selecting a bee as his emblem?

MRS. F.

He adopted it in preference to the fleur-de-lis, in imitation of some gold ornaments like bees which were found in the coffin of King Childeric, who was buried in the church of St.

* "Dieu me l'a donnée, gare à qui la touche."

Brice, at Tournay. These golden bees which were supposed to have studded the robes of Childeric are now deposited in the Bibliothèque du Roi at Paris. Three bees are borne as the arms of the Barberini family of Rome, of which Pope Urban VIII. was a member, but the bee as borne by Napoleon is an imaginary insect, differing in form from the real one.



NAPOLÉON'S BEE,
(copied from his coronation robes).

ESTHER.

Is it not at St. Denis that the celebrated French banner called the oriflamme was kept?

MRS. F.

Yes.

ESTHER.

Was it always the standard of the French?

MRS. F.

No; the early Franks painted upon their banners the wild beasts of their native country. Under the second dynasty, every count or governor of a province had his own banner: those of the cavalry, were of silk or velvet, while those of the infantry were made of cloth. Until

the reign of Philip Ist, the national standard of France was the mantle of St. Martin, Archbishop of Tours. *

I STAIR.

That is the Saint of whom the anecdote is related of his dividing his cloak with a beggar at Amiens. I have often seen paintings on this subject.

MRS. J.

Yes, the anecdote has repeatedly been portrayed, and in the collection of our own sovereign, there is a painting by Rubens, in which St. Martin is represented in armour, and on horseback (for he was then in the Roman cavalry), and with his sword he is cutting off a portion of his cloak.

ISSUES.

Then it is this cloak which formed the French standard.

MLS. 1.

That does not clearly appear; some say it was the mantle of the saint, Others assert that it was the shroud which covered his tomb, while others again say that it was a standard carried upon a spear, and made from either one or

- He was born about A. D. 316.

other of the above mentioned materials ; but the point does not mérit much discussion. This banner was always carried by the Counts of Anjou. It was Louis le Gros (VI.), who first adopted the oriflamme instead of the standard of St. Martin. The oriflamme was the sacred banner of the abbey of St. Denis, and was made of scarlet silk, hemmed with green, and ornamented with gold stars and fringe. It terminated in three peaks or tails, and was fixed upon a gilt-lance ; hence the name *ori-flamme*. This was the standard of the whole nation and army, from the time of Louis le Gros to Charles VII., but when the king commanded in person, there was also a royal flag, to point out the spot where the monarch was to be found ; this flag was azure, sprinkled with golden fleurs-de-lys*, upon which a white cross was afterwards quartered. Whether the French were victorious or not, the oriflamme was never captured. It was always deposited in the church of St. Denis, and, whenever the Kings of France went out to battle, they went in state to demand the sacred banner of the Abbot of St. Denis, and confided it to the care of the most valiant knight in the army, who swore to preserve it unstained, and to die rather than abandon it.

* For the history of the French fleur-de-lys, see Chapter XIV. of 1st series.

Under Charle's VII., the white flag became the banner of France, and the oriflamme ceased to be held in veneration; however, it still remained among the treasures of St. Denis, and existed in the sixteenth century; how it disappeared is unknown. A model of it is still to be seen in the cathedral, suspended above the choir, over the relics of St. Denis.

ESTHER.

Had not the Danes a miraculous standard?

MRS. F.

" Yes; the Danes used also to have a sacred banner called the *Danebrog*. This standard (which was a white cross upon a field gules,) was said to have fallen from heaven in the reign of Waldemar II.*, to replace the Danish flag which had been taken in the expedition against the Ethonians. The Danebrog was followed for many centuries with religious and military enthusiasm, and was ultimately lost in the disastrous expedition of John against the Dithmarschers, A. D. 1500.

ESTHER.

Mamma, I met the other day with a reference to the wars of the Guelphs and Ghibelines, in

* Ascended the Danish throne, A. D. 1202.

Italy, and mention is made, that in one of the engagements the *carroccio* of the Milanese was taken; what kind of standard was this?

MR. F.

It is one that you often find alluded to in the wars of Lombardy, those first struggles made by the people of modern Europe, to maintain their rights against despotism and oppression. The *carroccio* was the great standard car of the state, and appears to have been of Italian invention; it was introduced by Heribert, Archbishop Milan who, in 1039, waged a successful war against Conrad the Salic, and inverted this car which he caused to be adopted at Milan, and all the free cities of Italy soon afterwards followed the example.

ESTHER.

What did the *carroccio* resemble?

MRS. F.

It was built in imitation of the Jewish ark of the covenant, and consisted of a four-wheeled car painted red, and drawn by four pairs of oxen covered to the feet with trappings of scarlet cloth. In the middle of the car, raised upon an immensely high mast terminated by a golden orb, floated the standard of the community, and beneath it the effigy of our Saviour

extended upon the cross, and appearing to pour benedictions upon the surrounding host. A kind of platform in front of the car was occupied by some of the most valiant soldiers of the army, the appointed guards of the standard; behind was another platform, upon which were placed the musicians, who sounded with their trumpets, the charge and the retreat. A priest daily said mass at an altar in front of the car. The carroccio was the head quarters of the army; the surgeons, the chaplain, the military chest were all there. It was sacred in the eyes of the citizens, and its loss was the greatest ignominy to which a city could be exposed. All the flower of the army, therefore, was chosen for the guard of the sacred car, and all decisive strokes in a battle were generally directed towards it. It is probable that, from its raised platform, orders were given and signals made to the various squadrons and divisions of the army. This singular standard was a part of the military system of the Lombards of that period, and marked at once the rudeness and the wisdom of the tactics which regulated the free militia of Lombardy.

ESTHER.

How was that?

MRS. F.

It was necessary to improve the infantry, and to raise its importance, in order to oppose it to the cavalry of gentlemen of the imperial army; the carroccio contributed to this end; for the infantry obliged to accommodate its movements to that of the carroccio, acquired more regularity, more force, and more confidence in itself; a retreat was made in slower and better order, and flight was so ignominious as to be next to impossible. *

ESTHER.

This Italian car reminds me of the battle of the Standard, fought at Northallerton, in 1138, when the English carried along with them as their military ensign, a high crucifix which was erected upon a waggon, whence the battle derived its name.

MRS. F.

It certainly was a very singular contrivance; but to return to our subject. When military operations became more skilful and more rapid, it was found that from its slow motion, the carroccio was a complete incumbrance, and Ottone Visconti, another archbishop of Milan,

* Sismondi, *Républiques Italiennes*, and *Foreign Quarterly Review*, vol. vi.

substituted for it, a standard with the arms of the city and the image of St. Ambrose, the patron saint of Milan; it was intrusted to one of the bravest officers with a large stipend for defending it.

FREDERICK.

It must have been very slow marching, to keep pace with a bullock waggon.

MRS. F.

The Italian bullocks are particularly light and quick in their movements, but as the carroccio was heavily laden, its motion must undoubtedly have been very slow. There were varieties in the carroccio, as adopted by the principal Italian cities, Milan, Pavia, Cremona, and Florence; but the emperor Frederick II., who was wont to distinguish himself by his singularity, instead of the carroccio, introduced an elephant carrying a square wooden tower, at the angles of which were fixed several flags, while, in the midst, floated the great standard of the army. This tower was guarded by his faithful Saracens, whom Esther will recollect, that Frederick caused to be transported from Sicily into the cities of Luceria and Nocera*,

* This city still goes by the name of "*Nocera dei pagani*."

which they colonised, and which could supply him in cases of necessity with 30,000 soldiers.

ESTHER.

One would have thought such an invention of Eastern rather than of German origin. A white elephant on a crimson field, is the banner of China, and the emperor, among his various titles, is styled the "Lord of the white elephant."*

HENRIETTA.

Now that we are talking of banners, why is the English standard called the Union.

MRS. F.

It is so termed because it is formed by the union of the crosses of St. Andrew and St. George, the patron saints of Scotland and England.

FREDERICK.

What is the history of our saint, St. George of England?

MRS. F.

Esther, find me the 23d chapter of Gibbon's *Decline and Fall*, and we will read his account of this unworthy individual who, after a most ignominious life, was transformed into a saint.

*. Gutzlaff's China.

and a martyr, and became the patron of the English nation.

Mrs. Fortescue referred to the passage, and Esther read to our party the history given by Gibbon of St. George of Cappadocia or of England.

FREDERICK.

'I am sure that it is a disgrace to the English to have such a saint. Aunt, who was the first English duke?

MRS. F.

Edward the Black Prince who was created, in 1337, duke of Cornwall. The first marquis was the Earl of Oxford, created, in 1387, marquis of Dublin; and the first earl was Hugh de Pusat, bishop of Dublin, who was made earl of Northumberland by Richard I.; a curious instance of how spiritual and temporal titles were formerly mingled.

ESTHER.

And the viscounts?

MRS. F.

Lord Beaumont was the first viscount created by letters patent, in 1440, and perhaps you do not know, that although the eldest son of a viscount has no title, nor are his daughters styled

ladies, yet the eldest son and daughter of the first viscount are said to be the first gentleman and gentlewoman, without a title, in the kingdom.

The first baron made by letters patent, was created in 1338, but the barons had no coronets given to them, until the reign of Charles II.

Can any of you tell me the three bishops who take precedence of the rest?

ESTHER.

I think, mamma, that I can, for I read it the other day. They are—the bishop of London, as bishop of the capital city of England, and provincial dean of Canterbury; the bishop of Durham, as count palatine and earl of Sedberg; and the bishop of Winchester, as prelate of the order of the Garter.

HENRIETTA.

I wish I knew something about heraldry.

ESTHER.

Then why not study it, Henrietta? It is a very amusing pursuit, and one which you can easily follow with the assistance of a good elementary work. If you like, I will lend you Clarke's Heraldry, which will teach you as much as is necessary for general use, and I

shall be happy to assist you with my little store of information. If you will only give the subject a little attention you will soon be able to *blazon*, or describe, a coat of arms.

HENRIETTA.

What a curious expression.

MRS. F.

It is derived from the French *blaser*, to blow, originating in the ancient custom of the heralds, of blowing a horn, at jousts and tournaments, when they explained and recorded the achievements of the knights. But the term *blazon* reminds me of the story of the young Duval.

HENRIETTA.

Who was he, aunt; will you tell us about him?

MRS. F.

With pleasure. He was the son of a peasant in Champagne, who died when Duval was only ten years of age. Leaving his native village, the boy, after experiencing many vicissitudes, entered into the service of some hermits at Lunéville who gave him the charge of watching their cows. One of these recluses taught him to write, and so ardent was Duval's thirst for information, that he spent all his little earnings

in the purchase of books. One day, he found a gold seal, and upon the owner coming to him to claim his property, Duval replied, "that he should not have the seal unless he could *blazon* the arms which were engraved upon it." Surprised at such an answer from a cowherd, and still more surprised, on questioning him, to find how much Duval had taught himself, the gentleman supplied him with books and maps, and gave him directions to guide him in his studies. His passion for reading rapidly increased, and one day he was found under a tree surrounded by maps and absorbed in deep reflection. The gentleman who thus discovered him inquired what he was about. Duval answered that he was finding out the way to Québec as he wished to go to the university of that city to prosecute his studies. His inquirer was of the suite of the princes of Lorraine, who were returning from hunting in the forest, and who soon surrounded the young student. They sent Duval to college, and the duke of Lorraine, who took him under his own immediate protection, appointed him afterwards his librarian and professor of history at Lunéville. Duval's first care was to prove his gratitude towards his early friends, the hermits; he sent them a large sum of money to enable them to rebuild their house, and added to their revenues, by purchasing for

them a considerable portion of land. On the death of his patron, the duke of Lorraine, Duval followed his son Francis to Vienna, where that prince soon afterwards married Maria Theresa. Duval was made director of the cabinet of medals, and was lodged in the imperial palace, but he always retained his simple habits, and never forgot his humble origin. With the candour of true learning, he would frequently acknowledge his own ignorance*, and would often in answer to a question, reply "I know nothing about it;" upon which a block-head one day observed to him, "But the emperor pays you for your knowledge." "The emperor," replied Duval, "pays me for what I know; if he were to pay me for all that I don't know, the whole treasure of the empire would not be sufficient."

Duval died in 1775, at the advanced age of eighty-two, preserving to the last, his undisturbed cheerfulness, the fruit of a clear conscience, and of genuine piety.

* As another writer says, "I am ignorant of many things, but not of my own ignorance."

CHAPTER VIII.

ON TEMPERATURE.

THE PRICKLY PEAR. — HEAT IN WHICH PLANTS EXIST. — EXPERIMENT OF SIR JOSEPH BANKS. — POWER OF FISHES TO RESIST HEAT. — RESERVOIR AT MACCLESFIELD. — FLEXIBILITY IN THE ORGANISATION OF DOMESTIC ANIMALS. — THE GREENLAND DOG. — THE SHEEP IN ICELAND. — CATTLE FED UPON FISH. — MUSQUITOES IN THE POLAR, AND IN THE TROPICS. CACTI OF SOUTH AMERICA. — SAGACITY OF MULES. — ANECDOTE. — ANIMALS INTRODUCED BY COMMERCE. — ATMOSPHERE OF THE MOON. — TEMPERATURE OF THE PLANETS, AND THEIR UNFITNESS FOR THE HABITATION OF MAN. — PHILOSOPHIC DISCOVERY. — SIR ISAAC NEWTON. — LIMITED KNOWLEDGE TO BE ATTAINED OF THE WAYS OF PROVIDENCE.

"The body, moulded by the clime, endures
Th' equator heats or hyperborean frost."

ARMSTRONG.

HENRIETTA.

IN what a scorching situation, aunt, you have placed this prickly pear (*Cactus opuntia*).

MRS. F.

Yes; the cacti are all partial to heat, most of them growing upon the dry arid plains of South America. This species is much eaten in Sicily and Italy, and the agriculturists of Mount Etna plant it in the small fissures of the lava,

through which its roots soon penetrate, and by the force of vegetation gradually enlarge the crevices of the rock, and render it by degrees fit for cultivation.

ESTHER.

It is wonderful what extremes of temperature plants are capable of resisting.

MRS. F.

The vervain (*Verbena officinalis*) has been gathered at Bagnères, upon the banks of a stream, the water of which was at 31° Réaumur ($101\frac{3}{4}$ Fahrenheit); and at Dax in the Landes, *Tremella thermalis* lives in a fountain of hot water which is at 56° to 60° of the same thermometer.* Adanson assures us that various plants in Senegal vegetate and preserve their verdure, although the sandy plains upon which they grow are sometimes at 61° Réaumur ($169\frac{1}{4}$ Fahr.) Sonnerat found the *Vitex agnus castus* on the banks of a thermal rivulet in Luçon, the principal of the Philippine Islands, so near the water, which was at 174° Fahr., that its roots swept it; and Forster observed the first mentioned plant flourishing, with a number of others, at the foot of a volcano, in the island of Tanna,

* See First Series, Chapter V. for difference of the two thermometers.

one of the New Hebrides, where the thermometer stood at 210° , and *Confervæ* and other water plants are by no means unfrequently traced in the boiling springs of Italy which raise the thermometer to 212° . I have also read that, when one of the greenhouses at the Garden of Plants at Paris took fire, all the plants perished excepting the New Zealand flax, the leaves of which were burnt, but the root resisted this extreme heat.

ESTHER.

There is a curious species of moss (*Fontinalis antipyretica*) which is almost incombustible, and is used in Sweden as a lining to wooden chimnies to prevent the wood from taking fire.*

MRS. F.

This power of resisting heat is possessed also by the animal creation. Cf this, we have sufficient evidence in the experiments of Sir Joseph Banks and Dr. Blagden, who remained in a room heated at one time to 260° , and also in the instance of the girl who remained upwards of ten minutes in an oven where the thermometer stood, when she left it, at 288° ; but I believe there is an instance of the air

* Grey's British Plants,

being endured, for a space of five minutes, at 325° .

ESTHER.

Have not fishes been found alive in water of a very high temperature?

MRS. F.

Yes. Among the many instances with which travellers have furnished us, two will be found sufficient to give you in evidence of their extraordinary power of resisting heat. Sonnerat found fishes existing in a hot spring in the Manillas, at 158° ; and De Humboldt, when travelling through the province of Quito, perceived fishes thrown up alive, and apparently in good health, from the bottom of a volcano, in the course of its explosions, along with water and heated vapour that raised the thermometer to 210° ,—a temperature two degrees only below the boiling point.

ESTHER.

The common gold and silver fishes thrive in water above the common temperature, and I was told the other day by a gentleman who had visited Macclesfield, that at the coal mines near that town, there is a reservoir to receive the hot water and condensed steam from the engines employed in the works. The water

in this reservoir is consequently so hot that the hand can but just bear its heat; nevertheless, myriads of gold and silver fish are to be seen swimming in it, and the people at the mines say it is surprising how rapidly they have increased in this hot and muddy water, only two or three fishes having been, in the first instance, accidentally thrown in.

MRS. F.

I believe that gold and silver fishes are very often kept in these warm reservoirs; but both the vegetable and animal kingdom are equally able to resist the extremes of cold; and such is the kind dispensation of Providence, that in whatever climate man has been able to live, or has been impelled by curiosity to visit—whatever the soil, whatever the temperature, he has always found vestiges of animal being and of plants flourishing in vigour and in beauty.

ESTHER.

And how wonderful the readiness with which all the domestic animals that follow his footsteps are enabled to adapt themselves to the circumstances and nature of the climate!

MRS. F.

Yes; one cannot indeed reflect without ad-

miration upon the prodigious flexibility in the organisation of the animals which man has subjected to his empire. In Greenland, the dog eats the refuse of the fisheries, and, when fish fails, supports himself upon marine alga. The Iceland sheep, when their natural food is buried too deep for them to reach it, are fed by their keepers upon fish-bones. In districts of Norway, moss of every kind is given to cattle, and sea-weed, very generally, on the coast, is dried and carted two or three miles into the country, and when scalded with boiling water, which is poured off, it forms good and nourishing food for cows.

HENRIETTA.

Yes, aunt I recollect your telling us last year, that *Fucus vesiculosus* is used in Scotland as food for cattle.*

MRS. F.

A recent traveller in Norway also states that "fish-heads and bones are all carefully preserved in the district of Nordland, Finmark, and in Bergens Amt, and are boiled down to a soup, of which cattle are exceedingly fond. In Bergens Amt, when more herrings or sprats are caught in any particular spot than there are

* First Series, Chapter V.

barrels and salt to preserve, the fish are spitted on sticks, and hung up to dry; they are then greedily devoured by the cows, which in many places subsist very much on this diet." *

ESTHER.

But it is not only in their change of food that animals show the flexibility of their organisation. The horse and the ass, for instance, are natives of the cold and arid plains of Upper Asia, yet they follow man to the New World, there to return to their savage state, and lead under the tropics a different existence.†

MRS. F.

But not, I should think, a very happy one, for they suffer alternately from heat and cold, and are tormented by day with horse-flies and musquitoes, and during the night by enormous bats, which fasten themselves upon their backs, and cause dangerous wounds, rendered the more painful from being immediately filled with noxious insects (*Acaræ*, &c.).

ESTHER.

The musquitoes or gnats are also very annoying in the polar regions, and the hare in Lapland is more tormented by their attacks

* Laing's Norway, p. 427.

† Humboldt's Voyage, t. 6.

than any other quadruped. To avoid these insects, it is obliged to leave the cover of the woods in full day, and seek the plains; hence the hunters say, that of three litters which a hare has in a year, the first dies by the cold, the second by gnats, and only the third escapes and arrives at maturity.

HENRIËTTE.

"I had no idea that there were so many gnats, in the polar regions.

ESTHER.

"Yes; their number, are so prodigious as to be compared in Lapland to the falling flakes of snow or to the dust of the earth. The gnat, however, appears to be a universal enemy.

MRS. F.

Yes; history informs us that Sapor king of Persia was compelled to raise the siege of Ninibis by a plague of gnats which, attacking his elephants and beasts of burden, caused the rout of his army. In the Crimea, the Russian soldiers are obliged to sleep in sacks to defend themselves from their bites; and Captain Stedman states that when in America, his soldiers

were forced to sleep with their heads thrust into holes made in the earth with their bayonets, and their necks wrapped round with their hammocks.

ESTHER.

Dr. Humboldt tells us that, near the mouth of the river Unare, the inhabitants pass the night buried from three to four inches deep in the sand, leaving out their head only, which they cover with a handkerchief.

MRS. F.

And, in such myriads do they appear to swarm, that I recollect, in talking of one of the forests, he observed, that there was "*moins d'air que de moustiques*;" and he relates also the observation of an Indian to a missionary, "*Qu'on doit être bien dans la lune, à la voir si belle et si claire, elle doit être libre de moustiques.*" But, before we leave the subject of South America, I should tell you of the sagacity of the mules of that country. In plains divested of all moisture, when other animals are suffering from thirst, the mules seek the Cactus which, under its spiny covering, conceals a watery pulp. Carefully removing the thorns with its feet, the mule applies its lips to the

* Humboldt's Voyage, t. 7.

plant, and contrives to drink its refreshing juices.

ESTHER.

What kind of Cactus is it?

MRS. F.

The spherical species with fourteen sides, called *Cactus melocactus*. It grows half imbedded in the sand, it is about ten inches in diameter, and well deserves to be classed among those plants, which Saint Pierre terms "les sources végétales des déserts." The cacti belong almost exclusively to America, and their lofty cylindrical stalks, thirty feet high, rising like columns, and branching from the top like candelabra, produce a most extraordinary impression upon the stranger, when he first visits the arid plains which are covered with these plants. These stalks assume by age a woody consistency: they are considered by the Americans to be incorruptible, and are used by them to make oars, &c.* But I was saying the sagacity of the mules in these regions is wonderful. A muleteer will not say to the traveller who hires his mule "I will give you the one which goes the best," but "I will give you the one which *reasons* the best."†

* Humboldt. Tableaux de la Nature.

† Que mas reiona.

Animals, like man, become more sagacious and more acute in their senses, the nearer they approach to a state of wildness: the security of a domestic life, and the progress of cultivation, diminish the natural instincts, in proportion as they are the less called into action. I recollect, when we crossed the Col-de-Balmé, the pass which leads from the valley of Chamouni to Martigny, our muleteer gave us an anecdote of the sagacity and memory of one of his mules. When very young, this animal had traversed the road, and, nine years afterwards, when carrying his master across the same pass, they were overtaken by a snow storm, which destroyed every trace of the road. Although the mule had only once been that way, and that at so distant a period, yet he remembered the road so perfectly as to be able to make his way through the snow, and carry his master across in safety.

ESTHER.

So numerous are the mules in South America, that 90,000 of these animals are said to be wandering at large, in the plains on the north of the Orinoco. The herds of wild cattle and horses, which overrun South America, are immense; yet these animals have all sprung from

a few individuals, which were first carried there by the Spaniards.

MRS. F.

Pigs were first introduced into America by Columbus; and our ships have been the means of importing, unintentionally, the rat into the New World*, in the same manner that the Norway rat has been brought into our own country, and with equally devastating consequences.

ESTHER.

Commerce, we have every reason to believe, first introduced into England the American blight (*Aphis lanigera*), that pest of our orchards; and the cock-roach is also an animal of foreign importation. The moth so destructive to beehives (*Tinea melonella*), and the insect of the asparagus (*Chrysomela asparagi*), were not originally natives of Sweden, where they are now common; and the peach trees in St. Helena have been all destroyed by an insect that was imported from the Cape. †

MRS. F.

De Humboldt tells us, that the horses, cows, and other animals of European origin are obliged, during the periodical swellings of the

* Lyell's Geology.

† Kirby and Spence, vol. 1.

great rivers of South America, to lead an almost amphibious life. During the time of high-water, the mares are to be seen, followed by their colts, swimming about, and feeding upon the grass, of which the top alone appears above the surface of the water, while crocodiles are in quick pursuit to make them their prey. In this manner the animals, who escape their enemies, live, till the rivers return again to their beds; and they then roam once more in the savannahs, where they find a fine odoriferous grass, and enjoy, as in their native climate, the renewed vegetation of spring. Here, then, is another instance of the pliability of the organisation of domestic animals to the changes of climate and temperature.

HENRIETTA.

I wonder whether our animals could live in the moon.

MRS. F.

It is inferred not; for the lunar atmosphere must be of a greater degree of rarity than can be produced by our best air-pumps, consequently, no terrestrial animal could exist in it. Water would not remain fluid in any part of Mars, even at his equator; and, in the temperate zones of the same planet, alcohol and quicksilver

would freeze.' In Mercury, the mean heat, arising only from the intensity of the sun's rays, must be above that of boiling quicksilver; and water would boil, even at his poles. Thus the planets, though kindred with the earth in structure, are totally unfit for the habitation of such a being as man. The planets, also, differ very much in density from the earth. The earth is nearly four times as dense as the sun: a moderate sized man would weigh about two tons at the surface of the sun, and, on the contrary, at the surface of the four new planets, we should be so light that it would be impossible to stand, from the excess of our muscular force; for a man would weigh only a few pounds. *

ELNRIETTA.

How wonderful it is that astronomers should be able to ascertain these points.

MRS. F.

To minds unacquainted with science, such results of philosophic research seem to transcend the powers of human conception, and we view with wonder many assertions which the natural philosopher is enabled with confidence to make. They are nevertheless, conclusions to which any one may certainly arrive, who will only be at the

* Mrs. Somerville.

trouble^{*} of examining the chain of reasoning by which they have been obtained. "The chain is laid before us, and every link is submitted to our unreserved examination, if we have patience and inclination to enter on such detail. Hundreds have gone through it, and will continue to do so:" but "if, however, we content ourselves with this general view of the matter, we must content ourselves also to take on trust, that is, on the authority of those, who have examined deeper, every conclusion which cannot be made apparent to our senses." * Those individuals indeed deserve our admiration and respect,

"Whose curious thoughts with active freedom soar,
And trace the wonders of creating pow'r" †

But few are endow'd with powers of reasoning for the task; few minds can deduce from objects, apparently trivial and unimportant, results so wonderful, so stupendous. ‡ "To the natural

* Herschel's Discourse.

† Mrs. Elizabeth Carter.

‡ As Akenside says,—

"But not alike to ev'ry mortal eye
Is this great scene unveil'd for since the claims
Of social life to different labours urge
The active powers of man, with wise intent,
The hand of Nature on peculiar minds
Imprints a different bias, and to each
Deceives its province in the common toil.
To some she taught the fabric of the sphere,
The changeful moon, the circuit of the stars,
The golden zones of heav'n," &c.

PLEASURES OF IMAGINATION.

philosopher there is no natural object unimportant or trifling; from the least of nature's works he may learn the greatest lessons. The fall of an apple to the ground may raise his thoughts to the "laws which govern the revolution of the planets in their orbits," and the vibrations of a lamp may first awaken his attention to the oscillation of the pendulum.*

ESTHER.

No one has ever, I believe, made such discoveries as Sir Isaac Newton.

MRS. T.

No; no one has ever so widely enlarged the sphere of human knowledge. The magnitude of his astronomical discoveries excite our admiration of the mental powers which could so familiarly grasp them; and the minuteness of his researches is no less calculated to produce a corresponding impression. "Whichever way we turn our view, we find ourselves compelled to bow before his genius, and to assign to the name of Newton a place in our veneration which belongs to no other in the annals of science. His era marks the accomplished maturity of the human reason as applied to such objects. Every thing which went before

* See the anecdote of Galileo.

might be more properly compared to 'the imperfect attempts of childhood.'* Whatever has since been performed has never, in point of intellectual effort, surpassed those brilliant discoveries which have shed such a lustre upon his name.

ESHER.

It is related of Sir Isaac Newton, that, when one of his friends was complimenting him upon his wonderful talents, Sir Isaac assured him, that whatever he had done worthy of notice was owing to a patience of thought, rather than to any extraordinary sagacity, with which he was endowed above other men. "I keep," he said, "the subject constantly before me, and wait till the first dawning opens slowly, by little and little, into a full and clear light."

MRS. F.

This power which he had acquired of steady and continuous attention, that is, of directing all the faculties of his mind to bear undividedly upon the one subject immediately before it, so as fully to contemplate its nature and its bearings, is undoubtedly necessary for the due exercise of every other mental process; and, indeed, we have every reason to believe, that the diver-

* Herschel's Discourse.

sities in the power of judging, in different individuals, are much less than we are apt to imagine; but that the difference is rather to be ascribed to the manner in which the powers of the mind are directed and concentrated to one object. An ordinary mind, as I have before said, would have long beheld the fall of an apple, without seeing any relation between this common-place occurrence and the laws that guide the planets in their course; but it was from such a relation that Newton deduced those grand principles which govern the universe.

ESTHER.

Then the great object of science is to ascertain facts, and to trace their relations to each other.

MRS. F.

It is so; and, in the pursuit of science, it must always be remembered, that the powers which regulate those relations are entirely hidden from us in our present imperfect state of being. "It is humbling to the pride of human reason, but it is ~~not~~ the less true, that the highest acquirement ever made by the most exalted genius of man has been only to trace a part, and a very small part, of that order which the Deity has established in his works. When we endeavour to pry into the causes of this order, we perceive the operation of powers which lie far beyond the

reach of our limited faculties. They who have made the highest advances in true science will be the first to confess how limited these faculties are, and how small a part they can comprehend of the ways of the almighty Creator. They will be the first to acknowledge, that the highest acquirement of human wisdom is to advance to that line which is its legitimate boundary, and there, contemplating the wondrous field which lies beyond it, to bend in humble adoration before a wisdom which it cannot fathom, and a power which it cannot comprehend."*

* Abercrombie on the Intellectual Powers, p. 22.

CHAPTER IX.

THE KITCHEN GARDEN.

CLARET GRAPE. — AUTUMNAL TINTS. — INJURIES TO LEAVES. — INFLUENCE OF LIGHT UPON THE COLOURS OF PLANTS. — BLANCHING. — CHEIRANTHUS MUTABILIS. — WHITE CENOTHEIRA. — COBCEA. — HIBISCUS MUTABILIS. — BLACK AND WHITE HAMBURG GRAPE. — VINES OF ISCHIA. — OF FOIX. — SULTANA AND SYRIAN GRAPES. — CULTIVATION OF THE CORINTHI GRAPE. — MULBERRY. — COLLECTIVE FRUITS. — STRIPPING OF THE MULBERRY TREES. — SILK. — NAME DERIVED FROM THE MULBERRY. — WAX ON VEGETABLES. — CERONYLON ANDICOLA. — CANDLEBERRY MYRTLE. — LAW OF SOLON. — INFLUENCE OF THE VICINITY OF PLANTS WITH ACRID JUICES. — OF LEGUMINOSÆ. — THE PURZE AND THE SPANISH BROOM. — ROTATION CROPS. — OF FISH AND VEGETABLES. — CLAUSE IN FRENCH LEASES RESPECTING THE SALSOLA. — EFFECT OF CULTIVATION UPON VEGETABLES AND FRUITS. — SPINACH. — TARRAGON. — MUSTARD AND CRESS. — OXALIS CRENATA. — ESCULENT BULBS AND TUBERS. — CASSADA. — POTATOE.

“The sunny wall
Presents the downy peach, the shining plum,
The ruddy, fragrant nectarine, and dark,
Beneath his ample leaf, the luscious fig.”

THOMSON.

HENRIETTA.

ESTHER, how red the leaves of that vine have turned since I observed it last week.

ESTHER.

Yes. It is rather soon for them to assume their autumnal tints; but this vine is of the kind

which produces the Bordeaux or claret grape, and it always changes its colour earlier in the season, and turns of a more brilliant red, than any other in the garden. The grapes which it yields are generally so acid, that we have never used them, except for making wine or vinegar, until last year *, when the unusual heat of the summer ripened them sufficiently for the dessert.

MRS. F.

Naturalists have observed, that the red autumnal tint is most common in those leaves which contain an acid, such as the vine, the viburnum, the pear, sorrel, &c.; the peculiar brilliancy, therefore, of the red of our claret vine leaves, may be attributed to the larger portion of acid which this grape contains compared with the other kinds in the garden.

ESTHER.

It is an established fact, that the same colour is produced upon a leaf by the accidental puncture of an insect, the attack of fungi, or by early frosts, as that leaf would assume as its autumnal tint.

HENRIETTA.

Have the kindness to explain that again, Esther.

* 1835.

ESTHER.

I mean, that the colour to which a leaf changes, from any injury which it receives, is precisely that tint which the leaf would naturally take of itself in autumn. Thus, if an accident were to injure the leaf of a poplar or of a lilac, the leaf would turn yellow, if of a pear tree or of a sumach, red, those being the colours which these leaves turn in the autumn.*

MRS. F.

The information which we at present possess respecting vegetable colours is very limited; but that the action of solar light is, in reality, the great cause of colour in plants is proved by the leaves of plants which are grown in darkness being white or deprived of colour.

ESTHER.

Then it is not that plants lose their green colour by being placed in the dark, but rather, that, being removed from the influence of the light, they never acquire any colour at all.

MRS. F.

Exactly so. Vegetable tissue is pale and colourless, and, therefore, you perceive the error of our gardeners in talking of *blanching* their sea-kale and celery; they do not make them white, but, by depriving them of the action of the

* De Candolle.

light, they prevent them from turning green, and cause them to retain the original white colour of their tissue.

ESTHER. . .

Those flowers, then, which, on their first opening, are white, and afterwards become coloured, are influenced, I suppose, by the same cause, viz. the action of solar light.

MRS. F.

They are so.

HENRIETTA.

But to what flowers do you allude, Esther?

ESTHER. .

The pretty *Cheiranthus mutabilis*, for instance, which continues flowering so late in the year. Its flowers, on opening, are of a pale purplish white, they then change to bright yellow, and pass, in different gradations, through the various shades of purple. Then there are the beautiful evening primroses, (*œnothea tetraptera*, *speciosa*, *taraxacifolia*, &c.) the flowers of which, when they first expand, are of a clear white, but, before they die, they assume a pink or rose-colour.

HENRIETTA.

And I know of another example, the *Cobæa scandens*.

MRS. F.

Yes: its large bell-shaped corolla is of a greenish white when it first opens, and, on the following day, it becomes purple; but, not to multiply examples, I will only allude to one more, the changeable rose (*Hibiscus mutabilis*), of, as it is called by the French, *la fleur d'une heure*. This flower, when it first expands in the morning, is white, from which it passes to rose-colour, and, finally, to crimson. In the West Indies these changes all take place in the course of a day; but in the hothouses of our climate they occupy a much longer time.

HENRIETTA.

Aunt, what vine is this growing near the Bordeaux grape?

MRS. F.

It is the black Hamburg: the celebrated vine at Hampton-Court, which covers an entire house, is of this kind.

ESTHER.

What are its dimensions?

MRS. F.

It extends over a surface 22 feet broad by 72 feet long, equal, therefore, to 1694 square feet. The gardener at Hampton-Court informed me,

that, in 1816, there were at least 2240 bunches of grapes upon this vine, and that the weight of the whole crop may fairly be estimated to have been a ton.

HENRIETTA.

What an extraordinary return from one vine !

MRS. F.

The grapes which are brought over from Portugal in jars, and of which it is stated that 10,000 pounds' worth are imported annually into this country, are the white Hamburg.

ESTHER.

I have understood that the Ischian grape bears fruit at three different periods of the year.

MRS. F.

Yes : this is effected by the peculiar and ingenious manner in which the vine is pruned. At the time of flowering, and when the grape begins to stone, the vine is cut at the second or third knot above the fruit; the shoot throws out new branches, which flower : and, after this second flowering, the same process is repeated, and a third flowering obtained. By this method the grape is made to ripen at Paris, in August, September, and October.*

* De Candolle, *Physiologie Végétale*, p. 1318.

ESTHER.

I was reading, the other day, that, in the neighbourhood of Foix, stones, which generally offer such obstacles to agriculture, are employed with advantage in the vineyards.

HENRIETTA.

For what purpose?

ESTHER.

Great stones are carried to the vineyards, and carefully placed round the vines; these become heated by the sun, and, reflecting their heat upon the grapes, assist and accelerate their ripening. *

MRS. F.

Did you observe the Kishmist grape, Henrietta, at Mrs. Clifford's, the other day?

HENRIETTA.

No, indeed, aunt, I did not.

MRS. F.

It is remarkable, as being the kind which produces the little stoneless raisins called Sultanas. Mrs. Clifford also cultivates the Syrian grape, which yields the largest bunches of any species that is known in England: they have at-

* De Candolle. Phys. Veg. p. 1253.

tained the weight of nineteen pounds and a half*; and, in the native country of the vine, bunches have been grown weighing, it is said, forty pounds.

FREDERICK.*

I can tell you an anecdote about the vine.

MRS. F.

Let us hear it, then, Frederick.

FREDERICK.

During the revolt of Spartacus (B. C. 73), the gladiators were besieged in Mount Vesuvius, and had no other road by which to escape, except a very narrow path which was carefully guarded by the Romans. The rest of the mountain was covered by rocks, over which the wild vines grew in great numbers. The gladiators cut the strongest tendrils from these vines, with which they made firm and strong ladders; by these they descended to the plain, and thus escaped from their enemies.

MRS. F.*

And I will give you another. Æneus, king of Arcadia, was the great cultivator of the vine. His slave, one day, predicted that he would never again taste wine from his own vintage.

CENEUS immediately ordered a cup of wine to be brought to him; when the slave observed, "The cup is still far from the lip." At that moment, it was announced that a wild boar of Calydon was in the king's vineyard. CENEUS threw down the untasted cup, rushed out to his vineyard, and was killed by the boar. This, probably, is the origin of the common adage.

ESTHER.

Manima, is not the dried currant a grape?

MRS. F.

It is so.

HENRIETTA.

Then why do we call them currants?

MRS. F.

It is a corruption of Corinth, by which name they were usually denominated, from Corinth, where they were first cultivated. Philips so calls them, when he says, —

"Now will the *Corinths*, now the rasp, supply
 * Delicious draughts, the quinces now, or plums,
 Or cherries, or the fur Thibean fruit,
 Are press'd to wines."

ESTHER.

Would you have the kindness, manima, to give us some account of the currant, or Corinth grape?

MRS. F.

With pleasure. The Corinth grapes are about the size of a pea or of a red currant, and, when ripe, are of a purplish black: they are generally without seeds; and the juice, which is abundant, is sweet, but without any perfumed flavour.* The vine does not appear to be indigenous to Corinth, and there is no mention of it before the year A. D. 1600, when it is stated to have been brought into the Morea from the Island of Naxos, where, at present, not a single plant of it is to be found. The cultivation of this grape is not confined to Corinth, but extends in the Morea along the Gulf of Lepanto, in the territory of Patras, and as far as Gastouni (the ancient Elis). It is also produced in the islands of Cephalonia, Zante, and St. Mauro; but the best currants still come from the shores of the Gulf of Lepanto.

ESTHER.

Then it would appear that these vines like the vicinity of the sea?

MRS. F.

Yes; they prefer the plains near the sea, and delight in a deep, stony, dry soil: they will not flourish in rich ground. The vines are kept,

* Horticultural Transactions, 2d series, vol. i. p. 240.

very dwarf, like those of Burgundy, not exceeding from four to five feet in height.

HENRIETTA.

Then, if the vines are so much cut in, a vineyard cannot surely be a pretty object?

MRS. F.

No; the vineyards of the Rhine, and in those parts of France where this mode of pruning is adopted, are far from picturesque; but, if we wish to see vines in full beauty, we must go to Italy, where they are generally planted intermediate with the mulberry, and are either supported by a trellis-work of the *Arundo donax**, or hang in graceful festoons from tree to tree.

ESTHER.

And I have heard you say, mamma, that in the Tuscan valleys the vine is trained upon the maple. This tree is suffered to grow about twelve feet high, and its branches are pruned into a kind of frame-work, over which the vine runs in wild luxuriance, forming a classical *corbeille*, or basket, such as we see represented in ancient painting or sculpture.

MRS. F.

Yes; I have often admired the elegant forms

* See *Arundo donax*, in Chapter X. of the First Series.

which the maple and the vine thus present; but let us return to our Corinth grape.

The vines do not bear fruit until they are seven years old; and it is not until their twelfth year that they are considered to be in full bearing. These vineyards generally last eighty, and sometimes a hundred, years.

ESTHER.

When does the vintage take place?

MRS. F.

In the months of July and August. The grapes are cut by women and children, who carry them in baskets to a large enclosure, which is placed in the centre of the vineyard, and which resembles a thrashing-floor, except that it is not perfectly level, but has a slight inclination, to admit of the moisture running off. The bunches are next stripped by two workmen, who are stationed at the enclosure, for that purpose, and who take off each berry one by one, carefully rejecting all that have received any injury. The grapes are then spread upon the floor of this enclosure; and are left there, night and day, until they are dry, being carefully turned once in every four-and-twenty hours?

ESTHER.

How long do they take in drying?

MRS. F.

In a fine season, from eight to ten days are sufficient, but, in wet weather, they require from twenty to thirty; and, if rain should happen to be of long continuance, the crop is entirely lost. When the grapes are perfectly dry, the few stones which they contain are separated from the grapes with little rakes made of the African Bexthorn (*Lycium afrum*), and the grapes are then preserved in storehouses called *foragli*. These storehouses are of a peculiar construction, having a hole in the roof by which the grapes are thrown in; they are then trodden down, until they form such a solid mass that iron-pointed shovels are subsequently used to detach them. When the magazine is full, the hole in the roof is hermetically closed, and a small entrance is opened at the base of the storehouse when the grapes are to be removed. The Corinth grape is an important object of commerce in the Morea, whence from six to eight millions of pounds are annually exported. The greater part is sent to Holland and England: the more they are dried, the higher the value at which they are sold.*

ESTHER.

Thank you: I was not at all aware before that they were cultivated any where except

* See Scrofani, *Voyage en Grèce*, for the above particulars.

in the Ionian islands; for I was misled by the lines,—

“From soft Ionian isles, well known to fame,
(Ulysses’ once) the luscious currant came.”

HENRIETTA.

Aunt, I did not like to interrupt you; but in the quotation from Philips, which you gave us just now, he speaks of the “Thisbean fruit;” which does he mean?

MRS. F.

The mulberry; but, for his reason for so designating it, I must refer you to the story of Pyramus and Thisbe, in the Classical Dictionary. Wine used formerly to be made from mulberries, and, I believe, is still manufactured from this fruit. We find *morat*, or the juice of mulberries, mentioned as an English beverage. The mulberry is remarkable as being one of those fruits which is not produced by a single flower, but is formed by the adhesion of a considerable number into a single mass. Such, also, is the pine-apple, which consists of as many flowers as there are rhomboidal spaces upon its surface: in the mulberry, each tubercle represents a single flower.

ESTHER.

The fig, again, is of the same nature.

MRS. F.

It is ; so is the fir cone, in which each scale represents a single flower. In the classification of fruits*, these (with some others) are assembled in a class, termed collective fruits. This class is again subdivided into different sections ; but the whole group derive their character from the cohesion of their parts into one solid mass.

ESTHER.

When you were in Italy, mamma, did you see the establishments of silkworms ? *

MRS. F.

No, I did not ; but the mulberry trees, stripped of their leaves, have a most melancholy appearance. The mulberry is *spogliato*, as the Italians term it, two or three times in the course of the year, care being taken to leave a large tuft of leaves upon the top of the tree whenever the operation is performed.

ESTHER.

With what view ?

MRS. F.

The sap of a tree always directs itself towards those branches which have leaves, in preference

* See Lindley's Introduction to Botany.

to those which have lost them, and, with difficulty, attains the summit of leafless branches. By leaving therefore a tuft upon the top of the mulberry the sap is forced up to every part of the tree, and a second development of leaves takes place.*

ESTHER.

I have understood that the greater part of the white silk manufactured in England is brought from China, but is always mixed with so much gum as to render it necessary to boil it before it is used. The finest silk is brought from the Roman states.

HENRIETTA.

I should like to know more about the silk manufacture.

MRS. F.

Then refer to some of the encyclopædias and dictionaries of the arts; they will give you the information which you require, and will also furnish you with the whole history of this important production. "When silk was so scarce in this country that James I., while king of Scotland, was forced to beg of the Earl of Mar, the loan of a pair of silk stockings to appear before the English ambassador, enforcing his request

* De Candollé.

with the cogent appeal, — “ For you would not, sure, that your king should appear as a scrub before strangers.” Nay, long before this period, even prior to the time that silk at Rome was valued at its weight in gold, and the emperor Aurelian refused his empress a robe of silk on account of its price, millions of the Chinese peasantry, in some of the provinces, were clothed with this material; and for thousands of years to the present time, it has been both there and in India (where a class whose occupation was to attend silkworms appears to have existed from time immemorial, being mentioned in the oldest Sanscrit books), one of the chief objects of cultivation and manufacture. You will admit, therefore, that when nature

“ Set to work millions of spinning worms,
That in their green shops weave the smooth-hair'd silk
To deck her sons,” *

she was conferring upon them a benefit scarcely inferior to that consequent upon the gift of wool to the fleecy race, or a fibrous rind to the flax or hemp plants.” †

ESTHER.

The mulberry (*Morus*) not only gave its name

* Milton's *Comus*.

† Kirby and Spence's *Entomology*, vol. i.

to the Morea, but I have also understood that Ludovico Sforza of Milan so well known for his base intrigues with Charles VIII., and his subsequent imprisonment at Loches in Touraine, did not derive his designation of *il Moro*, from his dark complexion, but from assuming the mulberry as his device, that tree being the symbol of prudence.

MRS. F.

The Morello cherry is so called from *Morus*, the Latin name of the mulberry, the dark juice of this kind of cherry resembling that of the mulberry. The chesnut (*Castanus*) was so named from *Castanea*, in Magnesia, and the damson from *Damascus*, whence this fruit first came.

HENRIETTA.

And why was the greengage so called?

MRS. F.

It derives its French appellation *reine Claude* from the queen of Francis I., but the origin of its English name is more difficult to determine. The only cause which I can find given is, that this plum (which it appears had been long previously known in this country), was sent over among some other fruit trees from Paris, to a member of the Gage family, and the ticket

this plum being lost, the gardener named it after his employer, greengage, by which appellation it has ever since been designated.*

HENRIETTA.

How beautiful the bloom is upon this plum !

ESTHER.

I have been told that the London fruit-sellers restore the bloom to fruit which has suffered from gathering, by the means of a fine cloud of powdered magnesia which they throw over it with a very fine syringe.

MRS. F.

It is very probable that such a process would reproduce the appearance of bloom upon the fruit.

HENRIETTA.

What is it, aunt, that forms the bloom of fruit ?

MRS. F.

The glaucous powder we call bloom is wax which many vegetables secrete in considerable quantities. It is of common occurrence on the surface of plants and even in their substance. It causes the bloom of the pear and the cucumber, it produces the glaucous appearance of the cabbage and sea-kale, and the powdery efflo-

* Lindley's Guide.

rescence of many of the spinach•trike (*Chenopodeæ*).^{*} In these cases, it constitutes a coating that repels water, and defends from the effects of humidity those parts from which it is excreted; thus answering the same purpose as the oil which covers the feathers of the duck or the swan.

Wax is also formed upon the leaves of the poplar, upon the stalks of the bramble (*Rubus occidentalis*), and upon the bark of the willow. The *Iriarte* and the *Ceroxylon* have their trunks covered with a coating of wax, sufficiently thick to be worth collecting. Little is known respecting these two trees, but the wax palm (*Ceroxylon andicola*) also produces wax upon its leaves, this substance appearing to ooze out from all parts of the surface of the tree.

ESTHER.

And you have not mentioned the candleberry myrtle (*Myrica cerifera*).

MRS. F. . . .

No; this being the plant which produces wax in the greatest quantity, I have reserved it for the last. This shrub grows abundantly in Louisiana, and its berries are guarded with a thick coat of wax.

* Lindley.

ESTHER.

How is it extracted?

MRS. F.

By throwing the berries into boiling water and pressing them. The wax which rises to the surface is strained off, and again melted to extract any water it may retain, after which it is converted into candles that are of a very good quality, although of a greenish hue; they may however be whitened by the application of chlorine. The wax afforded by the berries of the candleberry myrtle is equal to about one ninth of their weight. *

HENRIETTA,

Did not Cardinal Pole introduce the fig-tree into England?

MRS. F.

So it is generally asserted. Most of our fruits were first brought into this country in the reigns of Henry VII. and Henry VIII.

HENRIETTA.

What a warm corner this would be for a fig-tree!

MRS. F.

Yes, but it is too near the nectarines, and

* De Candolle, *Physiologie Végétale*, p. 229.

the juices of the fig are so acrid, that I should be afraid of its roots injuring those of its neighbours. It has been recently observed to be hurtful to the peach; and it is singular that one of the laws of Solon*, which fixes six feet as the ordinary distance between trees, requires nine with respect to the fig-tree, so that the ancients evidently had some impression of its injurious effect upon the trees planted in its vicinity. †

ESTHER.

I believe that all plants of acrid juices are considered hurtful to their neighbours. The darnel‡ injures the corn; the euphorbia, the flax; and the poppy, the chicoracæ, &c. deteriorate the soil for other vegetables.

MRS. F.

The Leguminosæ, on the contrary, contain sweet and mucilaginous juices which ameliorate the soil. On this principle they have been employed for reclaiming uncultivated ground. In the vicinity of Lodève§, the Spanish broom (*Spartium junceum*), and in Bretagne and Lower Normandy, the common furze (*Ulex europæus*), have been used for this

* See the Life of Solon in Plutarch.

† De Candolle.

‡ See Chapter X.

§ Department of Herault.

purpose, and after having been sown with these plants for three or four years, the ground has been rendered fit for cultivation.

ESTHER.

In the sandy territory of the Campine, the Belgians also employ a similar expedient. They first sow the broom, then pines, next beech or some other genus of the Amentaceæ*, and, at the end of thirty or forty years, the sand of the Campine is sufficiently ameliorated for the cultivation of herbaceous plants.

MRS. F.

Our own nurserymen adopt a rotation of trees in their nurseries, and do not continue to cultivate one genus of plants for any length of time in the same part of their ground, but replace their fruit trees with pines or Amentaceæ and so forth. The system of rotation crops is, as you know, founded upon this one principle, viz. that the juices given out by the roots of a plant are hurtful to others of its own species; therefore fir-trees will not thrive where coniferæ have been planted before, or corn where corn has been long cultivated, &c. Of the latter we have a striking instance in the case of Asia

* Amentaceæ are plants bearing a catkin, such as the willow, poplar, oak, chestnut, birch, &c.

Minor and Northern Africa, which owing to the unlimited cultivation of corn, have degenerated from the most fertile regions of the earth into frightful arid wastes.

ESTHER.

I recollect that when one of the peach trees against Mr. Harcourt's wall died, another which was planted to replace it died also; and in the village avenue, four or five elms were planted one after the other, to succeed one which had been blown down, and it was not until a quantity of fresh earth had been thrown into the hole to refresh the soil that the last one succeeded. I suppose that if a fir or a tree of any different family from the elm, had been tried, it would have grown without difficulty.

MRS. F.

It would so; but the most curious example of the system of rotation is in the valley of the Saône, where animal and vegetable crops are alternated.

HENRIETTA.

How is that effected?

MRS. F.

The ground is flooded for two or three years and the water well stocked with fish. These

are an object of value in themselves, and also serve to enrich the ground, which, after the appointed time, is again drained, and restored to vegetable cultivation.*

ESTHER.

I have understood that the ground in which the plants that produce soda are grown, becomes more salt than that in which it has not been cultivated.

MRS. F.

Yes, this fact is so well established in the south of France that, at the time when the *Salsola* was extensively grown, the landlords by their leases, prohibited the farmers from cultivating it beyond a certain number of times in a given period, and De Candolle has satisfied himself, by analysis, that these plants do really impart a quantity of salt to the ground in which they are grown.

HENRIETTA.

Is not the sea-kale a marine plant?

MRS. F.

Yes; and this vegetable is one of the instances of the effect of cultivation. Light, as we know, favours the elaboration of the juices of a plant,

* De Candolle, *Physiologie Végétale*, p. 1500.

and by depriving it of light we diminish their strength and flavour. Thus we ameliorate, by exclusion of the light, the strong taste of the sea-kale (*Crambe maritimum*) the celery and the endive; or we take the young shoots of plants which, in their mature state, would be unfit to eat, such as the poppy*, the dandelion, the hop, the asparagus; or we seek to diminish by cultivation their acrid properties. The conversion of the dangerous, acrid wild celery (*Ajium graveolens*), into a mild and grateful vegetable, is a fine instance of the effect of cultivation; so is the sea-kale, to which we have already alluded, the asparagus, the cabbage (*Brassica oleracea*), and many other of our garden vegetables, which, I believe, the Italians were the first to convert to culinary purposes. . . .

Nor are the effects of cultivation less apparent in rendering our native fruits more salutary and agreeable to the taste. Who would recognise the wild parent of a greengage-plum in the austere sloe (*Prunus spinosa*), or that of the Ribston pippin in the worthless acid crab (*Pyrus malus*)? Or what resemblance can be traced between the Beurré or Jargonelle pears, and that stony, astringent fruit (*Pyrus communis*), which even birds and animals refuse to eat? Yet these are all undoubted cases of

* The poppy when young is eaten in Languedoc.

improvement, resulting from time and skill patiently and constantly in action.*

HENRIETTA.

Aunt, where did spinach first come from?

MRS. F.

That appears to be unknown. We first find it mentioned in the 14th century, among the different dishes allowed monks on fast days. It seems to have been originally introduced into Europe through Spain being called by the Arabs and Moors, *hispanach*, or Spanish plant, of which term our spinach is only a corruption.†

ESTHER.

Shallots came from Ascalon; hence their Latin specific name. (*Allium ascalonicum*.)

HENRIETTA.

What is this herb, aunt?

MRS. F.

Tarragon (*Artemisia dracunculus*), the only species of wormwood which we use in this country to flavour vinegar, but in the Alps others are also employed (*A. glacialis*, *rúpestris*, and

* Lindley's Guide.

† Beckmann's History of Inventions.

spicata, and *Achillea nana*), all these plants possessing the same properties, and being used indiscriminately for each other.* But we have in the flower garden another of the Compositæ, which possesses a similar flavour, and which might probably be employed for the same purposes as the tarragon. I allude to *Tugetes lucida*, a plant which belongs to the same genus as the French and African marygold; bite one of its leaves and you will perceive how exactly it resembles the taste of the tarragon.

HENRIETTA.

What are the plants which afford the salad we call mustard and cress?

MRS. T.

The white mustard (*Sinapis alba*), a British plant, and an Asiatic species of pepperwort (*Lepidium sativum*), are the two herbs which, eaten in a young state, are thus denominated. But here is one of the most useful additions which we have lately made to our collection of esculent vegetables, the *Oxalis crenata*, a native of South America, where the tubers of another species (*Oxalis tuberosa*) are also eaten.*

* De Candolle, Propriétés Médicales des Plantes.

† *Oxalis acetosella*, *compressa*, *frutescens* and *tuberosa*, are all remarkable for the quantity of salt of sorrel which they contain. *O. dodicandra* and another species are called, in Peru, *Vina-grilla*, to indicate their flavour. (D. C.) †

HENRIETTA.

In what manner do you use *Oxalis crenata* ?

MRS. F.

The leaves which possess the agreeable acid taste common to the whole family, may be used either as spinach or salad. The fleshy stalks, when peeled, are converted into an excellent preserve, and the tubers, which it produces abundantly, are eaten like potatoes or Jerusalem artichokes (*Helianthus tuberosus*) ; so that you see every part of the plant is useful.

ESTHER.

I have heard that the roots of an *Alstræmeria* (*A. dulis*) form a wholesome food, and those of *Cyperus esculentus* also.

MRS. F.

Yes ; so much nutritive matter is contained in bulbous and tuberous roots, that many have been turned by man to his advantage. Those of the snowdrop, when boiled, resemble in taste the orchis. The bulbs of the hyacinth are also used ; those of the Martagon lily make a food in Siberia ; *Asphodeus ramosus* is given to pigs in France, and indeed, while in the harmless families of plants the roots are always eatable, so (by the application of fire), they are rendered

nutritious and innocent in those which are poisonous and hurtful.

ESTHER.

As for instance in the Cassada (*Jatropha manihot*) which is strongly venomous, until the action of fire expels its acrid principle, leaving only a wholesome mucilage, which forms a general object of food in tropical climates, and under the name of tapioca, is much used in our own.

HENRIETTA.

But after all, the potatoe is the most useful vegetable that has ever been imported.

MRS. P.

Some assign its introduction to Sir Francis Drake, others to Sir Walter Raleigh: to whichever the honour may be due, it is one of the most lasting benefits that has ever been conferred. With this valuable and productive vegetable, the real want of food can never be felt; and so widely is it now diffused, that the potatoe is cultivated within the tropics, and in the plains of Siberia; in Chili, at eleven thousand feet above the sea; and in the environs of Quito (almost under the equator), at eleven hundred and fifty only.*

* Bowdich's Madeira.

ESTHER.

From the northern counties of England potatoes are largely exported to the Mediterranean.

MRS. F?

On their first introduction, they were but slowly diffused. It is remarkable that the potatoe has become an object of European agriculture only since the end of the 17th century, though tobacco has been cultivated in Portugal since 1559. Before the conquest, the use of tobacco was general in America, while that of the potatoe was unknown in Mexico and the Antilles. Thus has a simple article of luxury spread itself, in the two continents, with greater rapidity than a plant which has so powerfully influenced the welfare of society.*

LS'THER.

So late as the commencement of the seventeenth century, the potatoe was regarded in England as so great a luxury, that at the queen's table it was only served in small quantities, and at the price of two shillings a pound; it was, for a long time, treated as a fruit, baked in pies with spices and wine, or eaten with sugar; and nearly two hundred years elapsed

from its first introduction into this country, before its cultivation as a field crop. .

MRS. F.

I myself know of an instance that occurred within these last fifty years. Some potatoes were sent as a present from Ireland to a gentleman at Bordeaux, and his cook served them up raw, cut into slices, with oil and vinegar, having no idea of any other mode of preparing them.*

* Fact.

CHAPTER X.

THE VISIT TO A COTTAGE.

THE SICK COTTAGER — HER GARDEN — MAYWEED — HONEY-COME — BEESWAX, HOW INFACHED — MED, HYDROMEL AND MITHRILIN. — OFFICE OF MEADMAKER TO THE WISH PRINCE — MOUSE IN A HIVE — BEES, THEIR ANTIPTATHIES AND THEIR MEMORY — FROG AND OTHER PARASITIC FUNGI. — DARNEL — PARABLE OF THE WHEAT AND THE TARE. — LOILARDS — CAROB, THE NUSK OF THE TRODICAL SON — SNAKES AND VILERS, VARIOUS ANECDOTES OF — RATTIF-SNAKES — VILFR IN A JAY'S NEST — MODI OF KILLING IT BY ITS OWN VENOM — MODE OF KILLING THESE ANIMALS — TAKEN BY DOGS AND BY A CAT. — PRESENT-HUNTING CATS OF CYPRUS. — MATERNAL DEVOTION OF THE PARTRIDGE — THE YELLOW RATTIF — THE DAISY

“Behold the cot where thrives the industrious swain,
 Source of his pride, his pleasure, and his gain,
 Sheltered from the winter's wind, the sun's last ray
 Sheds on the window, and prolongs the day,
 Projecting thence the woodbine's branches stop,
 And turn their blossoms to the casement's top
 All need requires in that cot contained,
 And much that taste untaught and unrestrained
 Surveys delighted”

CRABBE

HENRIETTA.

“Where are you going, Esther, so early in the morning? I thought you always remained at home until one o'clock.

ESTHER.

So I generally do ; but I have just heard such an indifferent account of Mrs. Thomson, the wife of one of our labourers, that I am anxious to see her.

HENRIETTA.

May I go with you ?

ESTHER.

Certainly ; I shall be delighted to have you as a companion.

The two cousins accordingly set out together, and they soon reached the cottage. Nothing could be neater than the appearance which it presented ; the cottage was nicely whitewashed, and its rustic trelliswork porch was covered by a Clematis, which perfumed the air with its fragrance, and intermingled its luxuriant branches with the brilliant flowers of the scarlet-runner, which it relieved in beautiful contrast. The stone at the door was white as snow, bearing evidence, with the polished panes of the casement window, to the assiduous attention paid by the inmates to neatness and cleanliness.

The garden was in keeping with the cottage, and the disposition of its several compartments showed a careful regard to ornament as well

as utility. It consisted of about a quarter of an acre, as much as a labourer, if engaged in regular work, can find leisure to cultivate properly. The garden was surrounded by a narrow walk, on each side of which was a border of flowers, the centre of the ground being reserved for vegetables. In one corner was the pigsty, neatly screened from observation by a privet hedge; in the other, an arbour framed of osiers which had been suffered to vegetate, and which formed a green background to the China roses that ran over it in wild luxuriance.

Esther tapped at the cottage door, which was opened by a little girl of nine years of age, whose well patched frock was a model of prudence industry. The cousins lost no time in proceeding to the sick-room, where they found the invalid labouring under a severe attack of cold and fever, and evidently in much suffering. She welcomed Esther with manifest delight, for Esther was well known to the poor of the parish, as Mrs. Fortescue loved to make her children her almoners, and early led them to visit the sick and the sorrowful, and to give freely as they had received bountifully.* Esther was now of an age to impart great comfort and instruction to her poor pensioners, by reading

* "Freely ye have received, freely give."

and conversing with them upon the Scriptures, by lending them books of hymns, the touching narratives of Legh Richmond, or other such works as were best calculated to awaken their minds to the importance and blessings of the Gospel truths.

MRS. THOMSON.

I thank you very much, Miss Esther, for the book which you lent me; my girl has been reading it to me, and I have learnt some of the hymns by heart.

ESTHER.

Which were they?

MRS. T.

There is one called "Lovest thou me?" and another on prayer; but it would tire you to listen to them.

HENRIETTA.

I should like to hear one.

MRS. T.

"What various hindrances we meet
In coming to a mercy seat;
Yet who that knows the worth of pray'r,
But wishes to be often there?"

"Pray'r makes the darken'd cloud withdraw,
Pray'r climbs the ladder Jacob saw,
Gives exercise to faith and love,
Brings every blessing from above."

“ Restraining pray’r we cease to fight ;
 Pray’r makes the Christian’s armour bright ;
 And Satan trembles when he sees
 The weakest saint upon his knees.

“ Have you no words ? Ah ! think again,
 Words flow apace when you complain,
 And fill your fellow-creature’s ear
 With the sad tale of all your care.

“ Were half the breath, thus vainly spent,
 To Heav’n in supplications sent,
 Your cheerful song would oft’ner be,
 Hear what the Lord has done for me.”

COWPER.

HENRIETTA.

Thank you, Mrs. Thomson.

MRS. T.

You will find plenty more, Miss, in Miss Esther’s book, which you will like ; it is a great comfort to me that my girl can read, for I never had any schooling myself when I was young, and I have been often so sorry for it, that I shall take good care to give it to my children.

Esther remained long in earnest conversation with Mrs. Thomson, whom she found in a most happy and desirable state of mind. The interview was improving alike to both parties, for they who are not in the habit of visiting the poor, are little aware how simple and how clear are their views upon religious subjects. Having no other literary pursuits to distract their attention, the Bible is their

sole and constant study, and they thence acquire so intimate a knowledge of the Sacred Writings, and form conclusions so just and so scriptural, that even the most earnest clergyman will freely confess the benefit they have derived from conversing upon the Scriptures with the pious poor, so true it is that good often returns tenfold to the giver, and that "he who watereth shall be watered himself."

After reading a few prayers to Mrs. Thomson, Esther rose to take her leave, unwilling that the sufferer should fatigue herself by talking too much. "This is, indeed, a pleasure," observed Henrietta, "which I never before felt; I hope you will let me accompany you another day in your cottage visits."

On their way out, Esther and Henrietta inspected the garden more closely. Half the ground was occupied by potatoes, while beans, scarlet runners, onions, carrots, turnips, and pot-herbs filled the remainder, each having spaces allotted them, in proportion to their several measures of utility.

HENRIETTA. . .

But what a small piece is left for cabbages! Surely it cannot yield sufficient for Mrs. Thomson's large family, particularly as she keeps a pig?

ESTHER.

' You forget that they are not yet all planted; but when the beans are gathered, and the carrots drawn, the cabbages will be placed in the ground now occupied by these, and they will come in succession so as to last throughout the winter. But, look how fine the dahlias are! I am always pleased to see these showy ~~exotics~~ become sufficiently common to decorate a cottage garden.

Marygolds, sweet peas, stocks, lupines, &c., with a few clove carnations ornamented the border, which was edged with thrift and double daisies. An aucuba, with its variegated leaves, grew under the window in which were a few pots, well painted with red lead, and containing a dittany of Crete, a crassula, and some mensesbryanthemums, while two stately hollyhocks stood like giant sentinels on either side of the garden gate. In a corner, well sheltered from the rain, and open to the south and west, stood the beehives, — always an important feature in cottage economy, and, in this instance, a fit emblem of the humble industry of its possessors.

HENRIETTA.

But I see no fruit-trees, Esther!

ESTHER.

No; it would be turning so small a piece of ground to very bad account, were Mrs. Thomson to plant any here, for fruit is a luxury, not like potatoes and cabbages, one of the necessities of life; and no vegetables will flourish under the shade of fruit trees. Not only do their roots exhaust the soil, but their foliage prevents the free access of air, light, and moisture to the plants beneath them, and thus occasion mildew, and blight, besides the numbers of birds and slugs which are attracted by the fruit.

HENRIETTA.

I wish every poor person had a garden like Mrs. Thomson's.

ESTHER.

It were indeed much to be desired. A garden takes a labourer but little time to cultivate, and affords him a pleasing occupation in hours which otherwise would probably be ill spent. It is, moreover, a domestic and social employment, for his family can assist in his labours; his seeds cost him little or nothing, and the produce of a well-cropped garden adds materially to his means of subsistence, and also enables him to keep a pig. In the neighbourhood of large towns, land is so valuable that we see

many cottages built in rows without gardens, and their occupants are consequently compelled to purchase, at a considerable expense, vegetables which it would cost them little to raise. Happily, the exertions of those friendly to the allotment system are fast removing the evil; and although we may not expect, like the French monarch, to see "*la poule au pot*" on every cottage fire; yet we hope the period is not far distant, when every labourer shall possess such a portion of ground as will give him sufficient vegetables for the supply of his family, and for the fattening of a good large pig to cheer his Christmas board.

But here are mamma and the rest of our party who have kindly walked out to meet us.

FREDRICK.

Look, Henrietta, how I have been stung.

MRS. F.

You would almost suppose the sting to have been inflicted by a wasp; but Frederick has been stung by a plant which we call in this country, the May weed (*Anthemis cotula*), every part of which is of so acrid a nature that it blisters the skin if handled, and Frederick, not being aware of its property, has suffered in consequence.

ESTHER.

Mrs. Thomson surprised me the other day by telling me the various purposes to which she applied her honeycomb.

MRS. T.

I should like to hear them.

I STILL.

The honeycomb being chopped into small pieces, is hung up in a coarse cloth, and the honey is suffered to drain from it without pressing the cloth, which would prevent it from being bright and clear. This honey is sold, and the remainder of the produce is reserved for home use.

The honeycomb is next laid in water for ten days, that it may impart all its remaining honey to the water, which is then boiled, and yeast being added to cause fermentation, it is converted into mead.

The comb is now once more steeped in water, to which it still gives a slight saccharine taste. Of this the careful housewife makes vinegar, not very strong to be sure, but sufficiently so for the less fastidious tastes of those for whose use it is intended.

The honeycomb is then boiled, and as the wax rises to the surface, it is collected and thrown into cold water, after which it is rolled

into sticks, and forms the common yellow beeswax which is sold in the shops.*

MRS. F.

I had no idea that the industrious cottagers could turn their honey to so great account, although I was aware how profitable a branch it is of cultivation.

HENRIETTA.

How is beeswax whitened for candles?

MRS. I.

By cutting it into thin ribands, and laying it out in the air to bleach. The English beeswax is esteemed the best, but we are chiefly supplied from Russia and Africa.

LESLIE.

Is there any difference between mead and methueglin.

MRS. F.

I believe there is some slight variation in the process by which they are made. Among the Teutonic nations, mead or hydromel was a universal beverage; and the Scandinavian chief, when removed to Valhalla, expected to drink hydromel and beer, and to eat the flesh of the wild boar. Mead has even found its way

* The above is fact.

into Africa*, and it probably was the first fermented liquor known to the inhabitants of Britain, with whom it continued to be a favourite beverage long after the introduction of others. The mystery of its production was an important art, for in the courts of the ancient princes of Wales, the meadmaker was the eleventh person in dignity, and took precedence of the physician.†

ESTHER.

I did not know that mice were such enemies to bees, until Mrs. Clifford mentioned to me the other day a circumstance which occurred in her own garden. In May last, her gardener observing that there were no symptoms of movement in one of the hives, and that no bees issued from it, proceeded to examine it, when, to his surprise, he found that a mouse had comfortably established itself in the piece of carpet which he had laid over the top of the hive, to protect the bees from the weather, and that the little thief had feasted upon all the honey the bees being all destroyed.‡

MRS. F.

In Kirby and Spence's Entomology §, it is

* Donovan.

† Domestic Life in England. (A very entertaining little work.)

‡ Fact.

§ Vol. ii.

mentioned that the mouse, "especially the field-mouse, in winter, often commits great ravages in a hive, if the base and orifices be not well secured and stopped;" and an instance is given of a person losing all his bees from mice making a nest and producing their young among the combs.

ESTHER.

Bees take a singular dislike to particular individuals. Mrs. Clifford tells me that her bees have such an aversion to her gardener, that he cannot even approach the herb-bed near their hives without being stung, and that she was obliged to move them from their old station near the hot-house, as they would not allow him to work in it, unmolested.*

MRS. F.

This man has probably inflicted some injury upon them, either unintentionally or by design, which the bees cannot forget; and their continuing thus so pertinaciously to resent it, shows a considerable degree of recollection in these insects which are, I believe, considered to possess the faculty of memory in an eminent degree; for, how can we otherwise account for their regaining their hives without difficulty, when a bee

* Fact.

will sometimes travel six or seven miles from home in search of food.

FREDERICK.

What a curious looking ear this is which I have found in the rye! It is quite of a purple colour, and here is one almost black.

MRS. F.

This is a specimen of what is called the spurred rye (*Secale cornutum*). In rainy and moist seasons, the rye is very liable to this particular disease, commonly known by the name of *ergot*. In many districts of France*, where rye forms the principal food of the inhabitants, such a state of the grain is attended with the most fatal consequences, for it is then poisonous and dangerous to eat; many persons die, and others lose their teeth and limbs, in short, the accounts given of the effects of eating the grain in this vitiated state are most frightful.

ESTHER.

By what is it occasioned?

MRS. F.

Some difficulty exists on the subject, but the disease appears to be produced by a parasitic

* Particularly at Sologne, near Metz.

fungus (*Spernardia clavus*, D. C.) which grows within the seeds of various graminæ, and subsequently assumes the form of the grain it has destroyed.*

ESTHER.

That would assimilate it to the rust, smut, mildew and other diseases incident to corn, which are produced by different parasitic fungi.†

MRS. F.

"This corn is fit to cut. See how all the ears turn towards the south; there has been no wind to divert them from their natural direction.

HENRIETTA.

"What is the cause of their so doing?

MRS. F.

"It must be attributed to the same causes which influence the movement of the sunflower. The stalk is soonest dried, and consequently becomes contracted on the side which receives the sun's rays; this causes an inclination of the ear

* See De Candolle, *Phys. Végétale*, 1454, and the *English Flora*, vol. v. part 2. : —

• "Shield the young harvest from devouring blight,
The smut's dark poison, and the mildew white ;
Deep-rooted mould, and ergot's horn uncouth,
And break the canker's devolving tooth."

† See Chapter XV.

towards the sun: the heavier the head of the flower or grain, the more sensible is this effect, and the greener and more herbaceous the stalk, the more it is acted upon by the influence of the sun's light and heat.*

FREDERICK.

Aunt, what is this grass which I have just found growing among the corn?

MRS. F.

It is the Darnel (*Lolium temulentum*) one of the worst among the weeds of agriculture, but a plant of some interest to us, since it is supposed that the word translated *tares* in the beautiful parable of our Saviour, should be rendered darnel. The reason assigned for this alteration is plausible. The darnel grows among the corn, and if the seeds remain mixed with the wheat, they not only impart a bitter, acrid flavour to the bread, but if left in any considerable quantity, they produce stupor, intoxication, convulsions, and even it is asserted death. In appearance, this poisonous seed much resembles wheat, and travellers mention, that in some parts of Syria the plant is drawn up by the hand, in the time of harvest, along with the wheat, and is then picked out, and bound up in separate bundles to

* De Candolle, *Phys. Végétale*, 843.

be destroyed. Now, in the parable of the tares *, our Lord states the very same circumstance. Both grew together; they were not separated by the tillers, but suffered to grow together until the harvest, when the reapers were desired to bind them in bundles and burn them.

ESTHER.

Among the various derivations of the name *Lollards*, some trace it to *Lolium* the generic name of the darnel; the Lollards by their heresy, being looked upon as the tares or darnel among the wheat.

HENRIETTA.

Aunt, what are the *hushs* supposed to have been, which were eaten by the prodigal son?

MRS. F.

Bochart, the traveller, thinks they were the pods of the Garob (*Ceratonia siliqua*), which is very common in the Levant, and south of Europe. This tree, which is very handsome, from the beautiful contrast of its dark green pinnated leaves with the small clusters of its scarlet flowers, bears a bean or pod, from six inches to a foot in length, and in such abundance
 And ^{the} single tree will yield from 800 to 900 lbs.

† See Chapt. * St. Matthew, c. xiii. v. 24—30.

of pods. These pods contain flat seeds enveloped in a pulpy fleshy kind of husk, of a sweetish taste, which is considered very nourishing to cattle, and is also eaten in Italy by the people themselves. The fruit of the Carob was found in Herculaneum, and is preserved in the Museum at Naples. At Genoa, great quantities of it are consumed; it is given chiefly to horses, and during the Peninsular war, the horses of the British cavalry were often fed upon these pods.

FREDERICK.

Look, look, aunt, there is a viper!

MRS. F.

Where?

FREDERICK.

It has glided into the hedge.

MRS. F.

Then I suspect that it was a snake; a viper would not have retreated so quickly, and would probably have coiled round, and reared itself up in an attitude of defence. Had it a black zig-zag line along the whole length of its back?

FREDERICK.

No, it was of a dirty kind of ash green, with a very pointed tail.

MRS. F.

Conclusive evidence that it was a snake, for the tail of the viper is more blunted. When these animals are attacked, they open their mouths, and their little ones run down their throats for refuge until the danger is past. The fact has been related to me by persons who have witnessed it.

I saw a quantity of snakes' eggs dug out the other day from a heap of mould and manure, which the men were turning.

MRS. F.

Yes, these animals generally select the warmest places for depositing their eggs, and the fermentation of a manure heap causes it to be one of their most favourite resorts. Our keeper assures me, that the snakes and vipers lying out on the banks is generally a sign of rain.

FREDERICK.

How fierce these animals are when rearing their young! The butler was telling me, the other day, that having accidentally trodden upon a viper, the enraged creature darted at his leg, and bit one of the buttons of his gaiters with such violence, as to break two of its teeth, which

dropped out and fell to the ground. He tells me that vipers are very common about here, and that when the wood-cutters take down the faggots which have been stacked in the woods, they find numbers of them coiled up in knots together.

MRS. I.

Mr. Washington Irving mentions*, that the rattle-snakes are thus found in great numbers, and that on one occasion, his party fired with guns at a nest of these reptiles which lay coiled together, and that thirty-seven were killed or wounded. He also states that one of the greatest dangers that beset the travellers, was the number of rattlesnakes which infested the rocks, and on which the men were in danger of treading. To prevent any unwelcome visits from them during the night the tents were strewed with tobacco, of which these creatures have a great abhorrence. Rattlesnakes will not unfrequently find their way into dwelling houses, and I know a lady residing in Vermont, who once found one in the cellar.

FRANKLIN. . .

But your bailiff has been telling me of a man who discovered a viper in a much more singular place, viz. on the top of a tree which he climbed

to take the nest of a jay. On putting his hand into the nest to take the eggs, the viper darted forth and bit him so severely, that, to prevent mortification, he was obliged to have his arm taken off.

MRS. F.

Mr. Jesse*, mentions that snakes have sometimes been found in trees which they contrive to ascend in search of young birds, upon which they feed. They also eat toads; and a snake was killed last summer in the kitchen garden, when in the act of swallowing one of these animals, which appeared so much too large for its throat that it would have had some difficulty in effecting its purpose, if it had not been killed in the mean time.

ESTHER.

What is the best remedy for the bite of a viper?

MRS. F.

In this country the people have still great faith in the oil of the animal, and when a viper is killed, it is immediately flayed and hung up in the sun, and a cup placed underneath to collect the fat which drops from it. This is carefully preserved as a specific against the

* Gleanings in Natural History. 1st series.

venom; but I believe that the immediate application of sal volatile (ammonia), both internally and externally, is the best remedy that can be used.

FREDERICK.

A gentleman told me, the other day, that he had seen a snake swimming. It swam with a great part of its body out of the water, and moving its tail backwards and forwards, as a paddle; in this manner it crossed a pond. The bailiff tells me, that the way he generally kills a viper is to place his foot upon its head, while he takes out his knife to cut it off.

MRS. F.

In Dorsetshire they have a cruel method, which is this. When they find one of these reptiles, they hold it to the ground by a stick, round which it immediately coils; they then throw the viper and the stick into one of the nests of those large ants which we call horse ants (*Formica rufa*). The viper is immediately beset by the ants and becomes so irritated by their attacks, that it bites itself to death,—the effects of its own venom being as fatal to the animal as are the poisonous juices of plants to the very species which produce them.* The ants soon

* De Gandolle, 1869.

devour the flesh of the snake and, in a very short time, nothing but the skeleton remains. I found one last summer, of a viper which had only been killed the day before.

FREDERICK.

It is said that at whatever hour a snake has its head cut off, it never dies until sunset.

MRS. F.

The length of time that muscular irritability exists in reptiles, has given rise to this popular prejudice. Some people have a singular facility of capturing snakes and vipers, and I know of a nursery girl at Reigate, who amuses herself, in the summer, by going out upon the Downs, where these animals abound, and teasing them until they catch hold of her handkerchief; by then quickly withdrawing it, the sudden jerk extracts the fangs of the viper, and she can soon fill her pocket with these animals, and carry them home in triumph.

FREDERICK.

I know of a little dog which catches both snakes and vipers: during last summer he destroyed upwards of five and twenty. I also heard of the cat of one of our neighbours, coming into her master's room, with a live snake or viper in her mouth: she had caught the crea-

ture so ingeniously by the neck, that it could not turn round to bite her.*

ESTHER.

But it is no new thing for cats to be serpent-hunters. Debrèves, in his travels in the Levant, states that a promontory near Paphos, in the island of Cyprus, is called the "Cape of Cats" to this day. Their memory is thus revered, because the monks of a monastery (the ruins of which are still to be seen) kept a quantity of cats to wage war upon the serpents which infested the island. These cats were so well educated that, at the sound of a bell, they repaired to the abbey, at the hours of meals, and having finished their repast, they returned to their chase, which they pursued with unabated ardour, and with admirable dexterity. When the Turks overran the island, the monastery was reduced to ruins, and the cats shared its downfall, in common with their masters.

MRS. F.

But look at that partridge; see how it has been running up close to us, while Esther has been speaking: its brood of little ones must be near, by its anxiety to divert our attention,

* All the above anecdotes are facts which have occurred under the immediate knowledge of the writer.

FREDERICK.

' Yes, aunt ; I see it is the hen bird, for it has not the horse-shoe mark upon its breast ; look ! she is determined not to leave us : she has now settled close to Mary.'

MRS. F.

Now she is flying away ; I suppose that her young ones have reached a place of safety.

FREDERICK.

Yes, I see them running into the ditch at the further end of the field ; how fast the little creatures must have run through the corn !

MRS. F.

The partridge is one of the strongest instances in nature of maternal self-devotion : she will expose herself to the greatest danger, and even to death, in the defence of her young. The year before last, a partridge in our ground had its leg shot off, but it was seen last season with a fine covey of young ones, which the poor thing, notwithstanding the loss of its leg, was able to hatch and rear, and she was to be observed hobbling about with her little brood, almost as actively as if she were still in possession of both her limbs. *

* Fact.

HENRIETTA.

Aunt, what is this dead, brownish-looking plant?

MRS. F.

It is the yellow *rattle* (*Rhinanthus crista-galli*), now gone to seed. In Sweden, the rattling of these seeds in their husky capsules, is the signal for hay-making, but in England we begin when the plant is in flower.

MARY.

I think no flower is prettier than my favourite daisy.

MRS. F.

The daisy is ever associated in our minds with a thousand pleasurable recollections. It is connected with our earliest games, when a daisy garland was our greatest acquisition. Indeed, so familiar a favourite is it to us all, that a writer* not inaptly styles it "the robin of flowers." Its various names are all expressive of its beauty: *Bellis* in Latin, *Marguerite* in French, (a pearl†) and in English the *Day's Eye*. All the poets delight in the daisy. Burns' address to the "wee modest crimson-tipped flower" we have all read. Clare, the

* The author of the *Flora Domestica*.

† *Margarita*.

village poet, alludes to it*, and Chaucer and Wordsworth, never tire of expatiating upon its beauties.

MARY.

And there is Montgomerie's little poem to the daisy, which I learned the other day.

MRS. F.

We shall all be glad to hear it.

Mary repeated the following lines : —

“ There is a flower, a little flower,
With silver crust, and golden eye,
That welcomes every changing hour,
And weathers every sky.
The prouder beauties of the field
In gay but quick succession shine;
Race after race then honours yield,
They flourish and decline.

“ But this small flower, to Nature dear,
While moon and stars their courses run,
Wrathes the whole circle of the year,
Companion of the Sun.
It smiles upon the lap of May,
To sunny August spreads its charms,
Lights pale October on his way,
And twines December's arms.

* “ Daisies, ye flowers of lowly birth,
Embroiderers of the carpet earth,
That stud the velvet sod;
Open to spring's refreshing air,
In sweetest smiling bloom declare
Your Maker, and my God.”

Village Minstrel.

"The purple heath, and golden bloom,
 On moory mountains catch the gle,
 O'er lawns the lilies shed perfume,
 The violet in the vale
 But this bold floweret climbs the hill,
 Hides in the forest, haunts the glen,
 Plays on the margin of the rill,
 Peeps round the fox's den.

"Within the garden's cultured round,
 It shares the sweet carnation's bed,
 And blooms in consecrated ground,
 In honour of the dead
 The lambkin crop its crimson gem,
 The wild bee murmurs on its breast,
 The blue fly bends its pensile ~~to its~~
 Light o'er the skylark's nest

"His flower's page — In every place,
 In every season fresh and fair,
 It opens with perennial grace,
 And blooms every where
 On waste and woodland, rock and plain,
 Its humble buds unheeded rise,
 The rose has but a summer reign,
 The Daisy never dies

CHAPTER XI

ON SHEEP.

BISHOP BLAISE, THE PATRON OF THE WOOL-COMBERS — THE
 WOOLLEN MANUFACTURE IN IRELAND — WOOL THE RANSOM
 OF QUEEN PHILIPPA'S CROWN — FERTILE PROPERTIES OF
 WOOL — CARRIERS OF THE CARRIERS — FREIGHT EDGE OF
 WOOL — IRRITATION PRODUCED BY WOOLLENS — THEIR
 SHRINKING — WOOL IN IR AND ITS — DIFFERENT QUALITIES
 OF WOOL — LONG AND SHORT WOOL — SHEEP FARMING IN
 NEW SOUTH WALES — SAXON AND SPANISH MERINO SHEEP —
 THE WOOL MANUFACTURE IN SPAIN — VICIATION OF
 THE SPANISH STOCKS. — OF THE SHEEP OF IRELAND —
 ANECDOTE OF SHEEP SWIMMING — HISTORY OF ROCHDALE
 ITS — OF TOXIMUS — A BULLDOZING DAIRY IN IRELAND —
 SNOW STORMS IN THE HIGHLANDS — EXTRACT FROM THE
 LITTLE SHEPHERD

“ Thus in elder time,
 The reverend Blasius wove his leisure hours,
 And slumbers broken oft till fill'd at length
 With inspiration, after various thought,
 And trials manifold his well-known voice
 Garner'd the poor, and o'er Vulcan's stones,
 With tepid licks of oil and spiky comb,
 Show'd how the fleece might stretch to greater length,
 And cast a glossier whiteness. Wheels went round,
 Matrons and maids with songs relieved their toils,
 And every loom received the softer yarn.
 What poor, what widow, Blasius, did not bless
 Thy teaching hand? thy bosom like the morn
 Opening its wealth? What nation did not seek
 Of thy new-modelled wool the curious webs?”

BYER'S Fleece

HENRIETTA.

AUNT, who was St. Blaise?

MRS. F.

He was bishop of a town either in Cappadocia or Armenia, and suffered martyrdom in A. D. 289, under the Emperor Dioclesian, after having been cruelly tortured and lacerated with combs of iron. St. Blaise is the patron saint of the wool-combers, who assign to him the invention of the comb; his effigy is upon the medals or tokens of the wool manufacturers, and is still carried by them in procession in the wool towns of the north of Europe. What part he really had in the improvement of the wool manufacture, it is impossible to say, but the art of combing was introduced into Europe from the East.*

. . . ESTHER.

Where was the woollen manufacture first established in England?

MRS. F.

It was established at Winchester, by the Romans, soon after their conquest of this country. Some of the English fabrics reached the imperial city, where they were so highly valued, that, in the most luxurious era of the empire, the finest and most expensive robes — those which were used only on days of festivity

* Brady's Clavis Calendaria, vol. i.

or ceremony — were furnished by the British factories. The woollen manufacture continued to extend and flourish; and when, in the time of Richard I. the churches and monasteries were all obliged to give up their plate, as a means of raising the sum required for the ransom of that monarch, those orders who in conformity to their vow of poverty, had no plate, were compelled to contribute one year's wool. Hence it may be inferred that this commodity, next to plate, constituted their principal wealth; that the lands of the religious houses were employed in the growth of wool, and that wool was, after money, the most marketable commodity, and was consequently selected for a purpose like this, which admitted of no delay.

And Edward III. having pawned Queen Philippa's crown, at Cologne, for 2500*l.*, sent over a great number of sacks of wool to redeem it. This king was one of the great promoters of the woollen manufacture, for he invited over the Flemish manufacturers to settle in England.

HENRIETTA.

Aunt, I often hear people speak of the felting property of wool, but I do not clearly understand what they mean.

MRS. F.

By the felting property is meant that tendency in the fibres of wool to entangle themselves together; thus forming a mass more or less difficult to unravel. The woolly matted knots, which you sometimes find on the ears of my old spaniel, are an illustration of this quality, and so are also the matted portions of wool which we see upon the backs of the sheep; and which probably first suggested the idea of felting. Although weaving is an earliest date, yet Pliny speaks of the practice of making cloth by the felting process, (that is, by wetting the wool and submitting it to pressure, by which means it entangled itself into a compact mass,) as continuing even in his time; and the Tartars, to the present day, spread on the floors two or three layers of moistened wool, which they tread under foot for a few hours, thus forming carpets without the aid of machinery.

ESTHER.

What is it that gives the felting property to wool?

MRS. F.

If a small lock of wool be held up to the light, each of its fibres appears to be twisted into numerous minute, corkscrew-like ringlets. These spiral curls contribute materially to the

felting property of wool, but they are not the principal cause of it. The felting property of wool is owing to its serrated fibre, which has been lately discovered by means of a microscope of extraordinary power.

ESTHER.

Will you explain this further?

MRS. F.

It has often been observed, in drawing the filaments of the finest wool through the finger and thumb, in a direction from the root to the extremity, that the surface of the fibre is smooth and polished; but, if the direction be reversed, a little more force is requisite, and it is evident that the filaments are rough or jagged. But until 1835, the serrations of the fibre had not been clearly demonstrated, nor the structure of wool accurately ascertained.

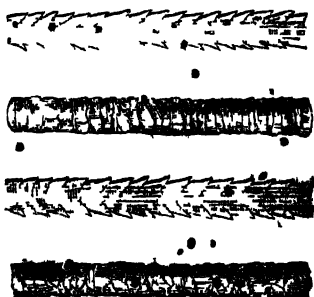
ESTHER.

Then what is the appearance of the woolly fibre, when viewed through a microscope?

MRS. F.

It consists of a semi-transparent central stem, or stalk, from which spring (at different distances in the different kinds of wool) a circlet of leaf-shaped projections, like leaves or scales, which are pointed and indented in different proportions, according to the different varieties of

wool. These serrations are most numerous, and the sharpest, in those kinds of wool in which the felting property is greatest. Thus, in the Saxony wool, which for felting is unrivalled, and which is therefore always appropriated to the making of the finest kind of cloth, the number of these serrations amounts to 2720 in an inch, while, in the Leicester, it does not exceed 1860. It is, therefore, clearly established, that the felting property depends upon the number of serrations in an inch, and, as these can be counted by means of a microscope, the relative value and quality of the different kinds of wool may be immediately ascertained.



SAXONY WOOL

1. A fibre of Saxony wool as a transparent object.
2. Ditto, opaque.
3. Ditto, combed, transparent.
4. Ditto, combed, opaque.



8



4

LEICESTER WOOL.

1. A fibre of Leicester wool, as a transparent object.
2. Ditto, ditto, an opaque one
3. Ditto, combed, transparent
4. Ditto, opaque.

(From the volumes on Sheep, in the Farmer's series of the Library of Useful Knowledge)

ESTHER.

This ~~separated~~ fibre accounts for the irritation produced upon the skin by woollen cloths.

MRS. F.

Yes, the sharp hooked edges of new flannel, until they are worn and broken off, have the effect of carding the skin very much like the tease of the carder. You recollect our reading

an interesting account of the cultivation of teasel, and its application in dressing cloth.*

HENRIETTA.

And why do flannels and other woollens shrink when washed?

MRS. F.

Because the pressure of the hand, and the soaking or boiling of the flannel, bring the fibres of the wool into more intimate contact with each other; and they entwine themselves so closely together as to become thickened, shortened, and converted into a kind of felt.

HENRIETTA.

What is the distinction between hair and wool?

ESTHER.

One difference is obvious; viz., the former is comparatively straight, while the latter assumes a spiral curling form; and hair, not being serrated like wool, will not felt, but entangles only to a certain degree.

MRS. F.

You are right, Esther; but even these cha-

* Journal of a Naturalist, p. 41.

acters are referrible, in a great measure, to the influence of climate and of cultivation, although they are sufficiently distinctive for all practical purposes.

HENRIETTA.

And what is fur?

MRS. F.

Fur is a mixture of wool and hair: the hare, beaver, rabbit, seal, bear, and others, have all wool as well as hair, varying in different proportions, according to the different degrees of cold to which the animal is exposed. Thus the weather and climate have great influence over the quality and value of furs; and the same species of animals that, in Russia, Siberia, and North America, produce the most valuable and beautiful furs, have nothing, in the warmer climates, but a coarse and thin covering of hair.

ESTHER.

Is there not a great difference in the quality of wool off the same sheep?

MRS. F.

Yes; a woolstapler will sometimes separate from six to ten, and even as many as fourteen, different descriptions of wool off the same fleece; which, by habit, he is able to assort into the different baskets around him with the greatest

accuracy. The manufacturer is thus enabled to obtain from the stapler, without any trouble, the exact quality which he requires for his purpose.

ESTHER.

I hear farmers talk of long and short wool, manna; to what do they refer?

MRS. F.

Long wool, or combing wool, is used for the manufacture of hard yarn, ~~and~~ ^{woolen} goods, and hosiery; short wool, or clothing wool, for the making of cloth, flannels, and fine stuff. The Leicester, Lincoln, and Romney Marsh sheep afford the long wool, while the short wool is produced by the Southdown sheep, the Cheviot, and some others. The superiority of the British long wool is unrivalled; but, in short wool, the British fleeces must yield to the German, Merino, and Australian sheep. The long wool averages about eight inches in length, the short two and a half.

ESTHER.

Sheep farming is becoming one of the great sources of wealth to New South Wales.

MRS. F.

Yes; it now constitutes the chief employment

of the Australian settler. Independently of the enormous flocks of the Australian Wool Company, several individuals possess from 15,000 to 20,000 sheep. These are divided into flocks of a size proportioned to the locality. In the level country, one shepherd and his dogs will take care of 1000 sheep, while, in the more woody and irregular districts, 350 sheep are considered a sufficient charge for one person. The wild dogs are the greatest enemies which the shepherd has to contend with; and so daring are these animals, that they will sometimes attack a flock in open day.

ESTHER.

What is the nature of the Australian wool?

MRS. F.

It is very soft and silky; and though not so valuable as the Saxony wool, yet it is more esteemed than the Spanish Merino.

ESTHER.

Of what kind are the Saxony sheep?

MRS. F.

They are Merino sheep, which were imported from Spain by the 'Elector in 1765, at the close of the seven years' war; and, through the exertions of the government, they have become

a principal source of the wealth of that country; and the Saxony wool now surpasses the Spanish in fineness and value.

ESTHER.

But there must be some difference in the temperature of the two countries?

MRS. F.

True; but one of the chief advantages of the Merino sheep is their power of resisting the extremes of climate. They thrive, and retain their fineness of wool, under a tropical sun, or in the bleak regions of the north, and we find them in equal purity at the Cape of Good Hope, in Australia, in the marshes of Holland, and under the rigorous climate of Sweden.

ESTHER.

Spain has long been celebrated for its woollen manufactures.

MRS. F.

Yes; agriculture was the favourite pursuit of the Roman colonists in Spain; and the improvement of their sheep was an object of great consideration.* When the Saracens in-

*The fleeces of the sheep pastured on the banks of the Guadalquiver had a reddish hue. Thus we read of—

“Garments of that innate stain
That wool imbibes on Guadalquiver’s plain.”

vaded Spain, in the eighth century, they found the country covered with flocks and herds; and the luxury of the Moorish sovereigns gave such encouragement to the woollen manufacture, that, at a time when it was scarcely known in Europe, Seville alone had 16,000 looms. The prosperity of the manufacture continued to increase; and the greater part of Europe, and the coast of Africa, were supplied with woollens from Spain, until the expulsion of the Saracens, which ~~caused the~~ decline of the manufacture.

HENRIETTA.

When did that event take place?

MRS. F.

Ferdinand of Aragon banished nearly 100,000 of these industrious people: Philip III. drove from Valencia more than 140,000 of the Mahomedan inhabitants; and, in the three following years, 600,000 more were expelled from Murcia, Seville, and Granada. The majority of these people were artisans — many weavers; and the natural consequence was, that the 16,000 looms of Seville dwindled to sixty, and the woollen manufacture almost ceased to exist throughout Spain.

ESTHER.

I have heard that the Spanish sheep are migratory.

MRS. F.

Yes; the account of the Spanish mode of sheep farming is curious, and I will, therefore, describe it to you. The sheep are divided into two classes; the *estantes*, or stationary, and the *transhumantes*, or migratory; but we will only refer to the latter, as it is from them that so many countries have been enriched. These sheep pass the summer in the mountains of the north, and the winter in the plains towards the south, of Spain. Suppose, Frederick, that you get the atlas; for you will have occasion to refer to it when I describe the route of the sheep. They may be divided into two immense flocks or classes, the Leonese and the Sorian.

The Leonese, after having wintered in Estremadura, on the north bank of the Guadiana, begin their march, about the middle of April, in divisions of from 2000 to 3000. They pass the Tagus at Almaraz, and direct their course towards Trecasas, Alfaro, and L'Epina, where they are shorn.

FREDERICK.

This operation detains them, I suppose, some time?

MRS. F.

On the contrary, it is very quickly performed, as there are so many shearers at these

stations that 1000 sheep are shorn in a day. Sheep-shearing being completed, the flocks continue their travels towards the kingdom of Leon. Some halt on the sierra, or ridge, which separates Old from New Castile; but others pursue their journey until they reach the pastures of Cervera, near Aguilar del Campo. Here they graze until the end of September, when they commence their return to Estremadura. Such is the route of the Leonese division.

— FREDERICK.

I have traced it on the map, aunt.

MRS. F.

Then I will now give you the line of march of the Sorian flock.

Having passed the winter on the confines of Estremadura, Andalusia, and New Castile, they begin their route about the same time as the Leonese division. They pass the Tagus at Talavera, and approach Madrid: thence they proceed to Soria (in Old Castile); when a portion of them are distributed over the neighbouring mountains, while the others cross the Ebro, in order to proceed to the Pyrenees.

• These periodical journeys can be traced back to the middle of the fourteenth century, when a tribunal was established for their regulation. It was called the *mesta*, and consisted of the

chief proprietors of these migratory flocks. The mesta established a right to graze on all the open and common land that lay in the way: it claimed, also, for the flocks, a path ninety yards wide, through all the enclosed and cultivated country; and it prohibited all persons, even foot-passengers, from travelling on these roads when the sheep were in motion. Such were the arbitrary regulations enacted by this tribunal.

ESTHER.

What is the particular object of these migrations?

MRS. F.

They are made under the idea that, by thus moving the sheep, they are kept in very nearly an equal temperature during the whole year; but it is very doubtful whether the end proposed be effected. The inconveniences attending these migrations are incalculable. Each journey, of 400 miles, occupies about six weeks, so that a quarter of the year is consumed in travelling. Much damage is done to the country over which these immense flocks are passing, particularly as the migrations take place at those times of the year when the property of the agriculturist is most liable to injury; in the spring, when the corn

has attained a considerable height, and in the autumn, when the vines are laden with grapes.

ESTHER.

What is the supposed number of these flocks?

MRS. F.

The number of migratory sheep is estimated at 10,000,000. They are divided into smaller flocks, each of which is under the care of a *mayoral*, or chief shepherd, who precedes the flock under his charge. Several of the sheep are so tame that they follow the *mayoral*, and the others obey their movements. There is no driving, all follow their leader; and the other shepherds are stationed with the dogs about the flocks, to defend them from the attacks of the wolves, which uniformly migrate with them. The sheep are as well aware as the shepherds when they approach the end of their journey; and it is necessary to use great vigilance over the flock, during the last three or four days, to prevent their escape, when they would inevitably become a prey to the wolves. When April again approaches, the sheep exhibit equal impatience to set out on their migrations.

FREDERICK.

What a number of shepherds must be necessary?

MRS. F.

It is supposed that 40,000 or 50,000 shepherd herds are employed in these peregrinations; and the number of dogs kept for guarding the sheep exceeds 30,000.

ESTHER.

To whom do all these sheep belong?

MRS. F.

To different large proprietors. The *Escorial*, which is supposed to produce the finest wool of all the migratory sheep, formerly belonged to the crown; and the *Paular*, the *Negretti*, *Infantado*, &c., to different noblemen or religious bodies.

ESTHER.

The French have, also, migratory flocks in Provence. In May, they are driven from the plains of Arles, and the delta of the Rhone, towards the Alps which divide Provence and Dauphiné from Italy, mostly in the direction of Gap and Barcelonette. This migration is not only sanctioned by custom, from time immemorial, but the sheep are assigned by law a road thirty-six feet wide. The flocks are collected together, and driven in troops of from 10,000 to 40,000. To every 1000 sheep, three shepherds, and as many dogs, are allowed. One shepherd is chosen by the others to

direct the march; and to regulate the affairs of the company. The sheep are led by goats trained for the purpose. These animals wear bells round their necks, and implicitly obey the directions of the shepherd: they halt or proceed as he commands, come close to the centre at the end of each day's march, and there wait in the morning until the order is given, when each goat repairs to his station, at the head of the troop, with the greatest regularity. On arriving at a stream, the goats halt until the word of command is given, and then plunge into the water, and are followed by the rest of the flock. The journey usually lasts from twenty to thirty days. In November the sheep return to their winter quarters.

FREDERICK.

But, aunt, I did not know that sheep would swim.

MRS. F.

Generally they do not; for in many of the large sheep pastures, such as Romney Marsh, ditches or dykes form the only boundary between the flocks of the different proprietors. I know, however, of a curious instance of a sheep swimming, which was related to me by the person to whom it belonged. This animal, which was one of the broad-tailed species, from

the Cape of Good Hope, had made several voyages with its master, the captain of a vessel. On the arrival of the ship at Portsmouth, the captain, thinking that the sheep would enjoy a green pasture, after its long confinement upon dry food, turned it out in a field near the harbour; but the sheep had hardly been ashore a day before it made its escape, plunged into the water, and swam back to the ship, which it regained in safety.*

FREDERICK.

How very curious!

ESTHER.

Do not the French make cheese from ewe's milk?

MRS. F.

Yes; the little cheeses of Montpelier, and those manufactured in the Basses Pyrénées, are made from ewe's milk; so are those made in the island of the Texel†; but the most celebrated of these productions is the cheese of Rochefort. In England, cheese was thus commonly made until the last century; and the practice still continues in Wales, and in the Highlands of Scotland.

* Fact.

† This island is celebrated for its race of sheep. The cheese is of a greenish colour. (Hand-book, p. 57.)

FREDERICK.

* In the *Odyssey* we read of ewe's milk cheese. Homer gives us a long account of the sheep of Polyphemus, and "of the process of making cheese"; Virgil also alludes to it.†

MRS. F.

The Italians make buffalo cheese, which is, I believe, very disagreeable. I have heard a buffalo dairy described by a person who had visited one of these farms, in the neighbourhood of Naples. All the milk, he said, was poured into an enormous tub, and placed in the chimney-corner, close to the fire, in order to accelerate the rising of the cream; but he assured me that the smell of the milk was much too unpleasant for him to venture upon tasting the cheese.

ESTHER.

How dreadfully the Highland sheep sometimes suffer from the snow-storms.

MRS. F.

Hogg, in his "*Shepherd's Calendar*," gives an interesting description of these fearful visitations; but I particularly recollect an anecdote he relates of the sagacity of a sheep-dog. One of these snow-storms had buried 340 sheep from

* *Odyssey*, b. 9.† *Georgic* 3.

six to eight feet deep, and over a tract of at least 100 acres. The shepherds endeavoured, but with little success, to find their sheep by boring with long poles in the snow: at length a white shaggy sheep-dog, named Sparkie, appeared to comprehend their perplexity; for he began to scrape the snow, and looked over his shoulder to the shepherds, as if to invite their attention. On digging at the spot he pointed out, they found that a sheep lay buried there; upon which the dog flew to another, and then to another, marking the places much more quickly than they could disinter the sheep; for he was sometimes twenty or thirty holes in advance. Before the snow went away, they got out, by the exertions of Sparkie, all the sheep on the farm, excepting four; and it was not his fault that these were not extricated; for, though they were buried beneath a mountain of snow, fifty feet deep, he had again and again marked the spot where they were to be found.

FREDERICK.

What a clever dog!

MRS. F.

We cannot better close our conversation, than by extracting from the same author his beautiful picture of the Highland shepherd.

“ I know of no scene so impressive as that of a shepherd’s family, sequestered in a lone glen, during the time of a winter-storm. There they are left to the protection of Heaven alone, and they know and feel it. Before retiring to rest, the shepherd uniformly goes out to examine the state of the weather, and make his report to the little dependent group within. Nothing is to be seen but the conflict of the elements, nor heard, but the raging of the storm. Then they all kneel around him, while he recommends them to the protection of Heaven; and though their little hymn of praise can scarcely be heard even by themselves, and mixes with the roar of the tempest, they never fail to rise from their devotions with their spirits cheered, and their confidence renewed. Often have I been a sharer in such scenes, and never, in my youngest years, without having my heart deeply impressed. We lived, as it were, inmates of the cloud and the storm, but we stood in relationship to Him who directed and governed them.”

CHAPTER XII.

THE CROSS.

THE ILLUMINATED CROSS AT ST. PETER'S. — THE CROSS OF ST. CHARLES AT MILAN. — OF ST. AUGUSTINE. — THEODOSIUS SURMOUNTS THE GLOBE WITH A CROSS. — LABARUM OF CONSTANTINE. — MONOGRAM. — GREEK CROSS. — RED CROSS OF ENGLAND. — ARMS OF KING ARTHUR. — CROSSES OF THE CRUSADERS. — FORMS OF THE CROSS. — BANNER OF THE SPANISH INQUISITION. — CROSS OF ST. JAMES AT COMPOSTELLA. — THE WHITELEAF CROSS. — INITIAL LETTERS ON THE CROSS. — THE CROSS ERECTED BY COLUMBUS. — THE CROSS A SANCTUARY. — MARKET CROSSES. — THE CROSS OF EDINBURGH. — ST. PAUL'S CROSS. — CROSSES OF QUEEN ELFANOR. — CROSS ON THE TOMBS OF THE EARLY CHRISTIANS. — MORTUARY CROSSES. — CHURCHYARD AT ZUG. — ALPINE CROSSES. — FORM OF CHURCHES. — THE ROOD. — THE CROSS ON BREAD. — THE CRUCIFIX OF MARY, QUEEN OF SCOTS — OF JOAN OF ARC — AND OF THE CHEVALIER MAYARD. — THE RED OF PENITENCE. — CONSTELLATION OF THE CROSS. — EXTRACTS FROM DE HUMBOLDT AND MONTGOMERY.

“ Immanuel's cross,
 The ensign of the gospel, blazing round
 Immortal truth.” POLLOCK.

ESTHER.

MAMMA, did you ever see the illuminated cross in St. Peter's ?

MRS. F.

No; it is exhibited only on two evenings of the Easter week, and I have never been at Rome at that period.

HENRIETTA.

I never heard of it, aunt; will you describe it to us?

MRS. F.

This cross is about twenty-four feet high, and is covered with brass plates, upon which are fixed about a hundred and twenty lamps. At one period, during the service, all the other lights in the church are extinguished, and this single illuminated cross, suspended from the cupola, and blazing forth in the midst of darkness, has a most grand and imposing effect.

ESTHER.

When the pope goes in procession, the cross is always carried before him.

MRS. F.

Yes; this custom is most ancient, for it dates from St. Sylvester; some indeed trace it as far back as Clement I., or about seventy years after St. Peter.* The cross is also carried before

* See page 21.

bishops. In the cathedral of Milan is preserved the cross which was borne in procession before St. Charles Borromeo, during the plague of 1576* ; and Wolsey, in his progresses throughout the kingdom, had a large cross carried before him. We also read of St. Augustine, that, when he arrived in this country, and was summoned to appear before King Ethelbert, he approached the royal presence armed, not with "magical art," as the king anticipated, but bearing before him a large silver cross, and a picture of our Saviour, painted upon a board. Thus did this ensign of the gospel every where accompany Christianity; and, as earthly kings and magistrates bear with them the emblems of their authority, so does the church carry with her the banner under which she fights — the symbol of her salvation.

ESTHER.

Theodosius was the first emperor, who used the globe surmounted by the cross, similar to the "orb," which is always placed at the coronation in the left hand of the English sovereign.

MRS. F.

He was, Esther. The globe had long been a favourite emblem with the Roman emperors; some of whom surmounted it with a figure of

History, others with the imperial eagle, and the family of Constantine with a phoenix; but the emperor Theodosius substituted the cross, intimating thereby, the triumph of Christianity over the whole world. I need hardly allude to the vision and victory * of his predecessor Constantine, under whom the cross first became triumphant in the eastern empire, and who placed the Christian symbol upon his crown and sceptre, for we have read together the account of his conversion, as quoted from Eusebius.

ESTHER.

And also the history of the *Labarum*, or sacred banner, which he caused to be made.

HENRIETTA

What was that Esther?




ESTHER.

It is described as a long spear, plated with gold, having a transverse beam at the top, in the form of a cross: to this was fastened a square purple banner, highly enriched with gold and precious stones: near its summit was a picture of the emperor and his sons. Above the cross stood a crown, within which was placed the

* About A. D. 336, at Sinzig, the ancient *Sentiacum*, in Rhenish Prussia, where the Empress Helena founded the first Christian church.

sacred symbol, viz., the two first letters
Christ's name in Greek, X and P.

MRS. F.

This monogram is constantly found in ancient monuments variously delineated, the one letter being placed through the other, as thus,  or  or . The safety of the labarum, or standard of the cross, was entrusted to fifty guards of approved valour and fidelity; and the sight of the consecrated banner animated the soldiers with enthusiasm, and scattered dismay through the ranks of the enemy. The Christian emperors displayed, in all their military expeditions, the standard of the cross; but, when the degenerate successors of Theodosius had ceased to appear in person at the head of their armies, the labarum was deposited, as a venerable relic, in the palace of Constantinople.* Constantine caused the cross to be engraved on the shields and helmets of his soldiers; and Theodosius seems to have given a final blow to Paganism when, about A. D. 426, he forbade all pagan ceremonies, and commanded that the cross should be placed in any of the pagan temples which were still standing.

ESTHER.

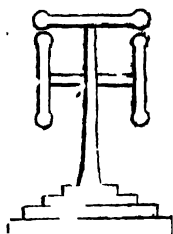
What is the origin of the Greek cross, mamma?

* Gibbon, chapter xx

MRS.

MRS. F.

" It is the cross as represented on the coins of Justinian, who modified it into the form which is peculiarly called the Greek cross, and which represents the three crosses of the crucifixion; that of our Saviour in the middle, and those of the malefactors on each side, thus.



ESTHER.

" I suppose it is from the crusades that we must date the adoption of the cross into the banners of, I believe, every country in Christian Europe?

FREDERICK.

The red cross of England, I conclude, was then introduced.

MRS. F.

Some writers assign to our red cross even an earlier date; but King Arthur does not appear to have used it; for we read that "he left his armes which he bare before, wherein was figured three dragons, and assumed, or took to his armes, . . . a crosse silver in a field vert; and on the first quarter thereof was figured an

image of outre ladye, with her sonne in her armes. And bearing that signe he did many marveiles in armes; as in his bookes of actes and valiant conquestes are remembered."

HENRIETTA.

Where was the cross generally worn by the crusaders?

MRS. F.

In imitation of our Saviour, who bore the cross to the place of execution upon his shoulders, the cross was usually worn on the right shoulder, or on the upper part of the back, and it was frequently fixed upon the top of the arm. The pilgrims, on their return from the holy-land, generally placed the cross upon their backs. Some of the crusaders cut the holy sign upon the flesh itself.—

"And on his breast a bloodie cross he bore,
The dear remembrance of his dying Lord,
For whose sweete sake that glorious badge he wore,
And dead, as living, ever him ador'd;
Upon his shield the like was also scored,
For soveraign hope which in his help he had." *

HENRIETTA.

What were the usual colours of the crusaders' cross?

* Spenser.

MRS. F.

Red was for a long while, even until the time of our Richard I., the general colour of the cross. It was with crosses of red cloth that pope Martin II. invested the first crusaders at the council of Clermont * ; while at the meeting of Vezelai †, when Louis VII. engaged in the holy wars, St. Bernard, having exhausted the store of crosses which he had brought with him, tore his simple garment into small pieces, and affixed them to the shoulders of his kneeling converts. At the meeting which took place at Sens between Henry II. and Philip Augustus, in 1188, when these two monarchs agreed upon the third crusade, it was arranged that the French should wear a red cross, the English a white, and the Flemish a green. Henry died the following year ; but the crusade was undertaken by Richard I., in conjunction with Philip, and the veteran emperor Frederick Barbarossa. ‡

* A. D. 1095.

† A. D. 1146.

‡ He was seventy years of age when he set out on this crusade ; the blind Dandolo was ninety-four at the siege of Zara, and Hermauric, the king of the Ostrogots, during the Gothic war in the reign of Valens, carried on his exploits between the age of eighty and a hundred and ten. The advanced age at which some men have begun their studies is no less remarkable. Cato learned Greek at eighty, and Plutarch began Latin when almost as advanced in life. Theophrastus began his work on the characters of men at the age of ninety. Dr. Johnson commenced the Dutch language a few years before his death. Franklin first entered upon his philosophical pursuits at fifty ; and Socrates began to learn music in his old age.

Writers, however, differ with regard to the colours of the national crosses; for another author* gives them as follows: "The Scots carried St. Andrew's cross," which, you know, is white; "the French, a cross argent; the English, a cross or; the Germans, sable; the Italians, azure; the Spaniards, gules." —

"There, armed and mounted, goes the pilgrim knight,
To meet the Saracen in Acre's field:
The cross is on his shoulder and his shield,
And on his banner and his helmet bright:
He knoweth not to truckle nor to yield,
But valiantly for his dear Lord to fight;
For on his heart is this high purpose sealed,
To see Jerusalem; O glorious sight!
To quench his thirst at Siloa's sacred fount;
To bathe in Jordan's stream without constraint,
To stand on Calvary's thrice honoured mount,
And there the standard of the cross unroll;
On that blest spot those sufferings to recount
Which he endured who died to save his sinful soul."†

ESTHER.

And what were the colours of the crosses of the different religious orders?

MRS. F.

The Teutonic knights wore a black cross embroidered with gold; the knights of St. John, a white cross; the Templars, a red cross; and the knights of St. Lazarus, who were under the

* Mackenzy.

† Cruciana. An interesting work upon the cross, from which much of the above information is derived.

protection of the king of Jerusalem, wore a green cross.*

ESTHER.

What a variety of forms of the cross we find in heraldry !

MRS. F.

Yes ; as many as forty-six are enumerated by some authors.

ESTHER.

I met, the other day, with a representation of the banner of the Spanish Inquisition. Upon it, is a wooden cross, full of knots, having a sword on one side, and an olive branch on the other, with the circumscription "*Exurge Domine, et judica causam tuam,*" the translation of which is "Arise, O God ! plead thine own cause."

MRS. F.

Speaking of Spanish crosses, one of the most celebrated in Spain is that in the church of St. James, at Compostella. This cross is erected upon a platform of stone ; and pilgrims are expected to pass under it through a small hole, with their breasts against the pavement ; an operation which cannot be performed without some suffering and much difficulty.

* Mills's History of the Crusades.

ESTHER.

Mamma, did you ever see the white cross in Buckinghamshire?

MRS. F. .

No; but I have read a description of it. It is near the hamlet of Whiteleaf, and is cut on a high and steep chalky hill facing the south-west. "The perpendicular line of the cross is nearly a hundred feet in length, and about fifty in breadth at the bottom, but decreasing upwards to nearly twenty feet. The transverse line is about seventy feet in length, and twelve in breadth, and the trench cut in the chalk is from two to three feet deep. This stupendous cross is said to be discernible at a distance of thirty miles."



CROSS AT WHITELEAF, BUCKS
From an engraving in "Cruciana."

ESTHER.

" Then it is a monument of a somewhat similar description to the celebrated white horse in Berkshire, which you told us is attributed to Alfred.*

MRS. F.

Both are considered as emblems of triumph, and are regarded as the work of about the same age; but, as history does not bear out the supposition of its being the work of Alfred, an antiquary†, with more plausibility, regards it as being formed by Alfred's son, Edward the Elder; and thinks it was executed in commemoration of a victory gained by him near the spot, in 905.

HENRIETTA.

Pray, what is the meaning of the letters we so often see on the cross in paintings and upon our Bibles?

MRS. F.

" You allude, I suppose, to I. N. R. I., which are the initial letters of the Latin superscription "*Jesus Nazarenus Rex Judæorum*," i. e. Jesus of Nazareth, King of the Jews. We also often see on crucifixes, &c., I. H. C., which implies

* See First Series, Chapter XIV. † Dr. Wise.

"*Jesus Humanitatis Consolator*," Jesus the Consoler of Mankind; and sometimes I. H. S., "*Jesus Hominum Salvator*," or Jesus the Saviour of Men.

ESTHER.

Crosses were in very early use for marking the boundaries of land. It was also the practice of some of the discoverers, on landing upon any new territory, to erect a cross. I recollect that Robertson mentions such to have been the case with Columbus. When he set foot in the New World which he discovered, he caused a crucifix to be erected; and he and his followers, prostrating themselves before it, returned thanks to the Almighty for conducting their voyage to such a happy issue.

MRS. F.

It were endless to enumerate the various uses to which the piety of man has applied this memorial of redeeming love. In Catholic countries, crosses on the road are endowed with the privilege of sanctuary; and any person who flies to a cross remains as free from molestation as if he had sought refuge in the church itself. Many of our towns used to have their market crosses, the general intent of which "was to excite public

homage to the religion of Christ crucified*, and to inspire men with a sense of morality and piety amidst the ordinary transactions of life." From the steps of these crosses, proclamations were formerly issued; and from them, too, during the Protectorate, bans of marriage were ordered to be published.

ESTHER.

In *Marmion*, Sir Walter Scott alludes to the demolition of the cross of Edinburgh. †

"Dun-Edin's Cross — a pillar'd stone —
Rose as a turret octagon,

But now is razed this monument

Whence royal edicts rang,

And voice of Scotland's law was sent
In glorious trumpet clang."

MRS. F.

Then there were the preaching crosses, the most famous of which, in England, was the celebrated St. Paul's cross, in London. This cross was not only used for the religious instruction of the people, by the voice of the preacher, but for every purpose, political as well as ecclesiastical. Here oaths of allegiance were taken, papal bulls promulgated, penances performed, and statutes and ordinances read.

* "That holy crosse, whence thy salvation came,
On which thy Saviour and thy sin did die."

WOTTON

† In 1756.

ESTHER.

Has it been long destroyed?

MRS. F.

This cross, of which we find the first mention in the reign of Henry III., was demolished, in 1643, by order of parliament.

HENRIETTA.

You have not mentioned Charing Cross, aunt.

MRS. F.

No; because we have not yet alluded to memorial crosses, among which those erected by king Edward are the most celebrated. Of these there were originally fifteen, but now only three are remaining; viz., those at Geddington, Northampton, and Waltham. That at Charing Cross was destroyed during the civil wars of Charles I., and stood where the present statue of that king (the first equestrian statue executed in England) was subsequently placed. This brings us to one of the most frequent applications of the cross — the mortuary cross, or memorial of the dead. In the catacombs of Rome and Naples, a cross, or the sacred monogram *, indicates the tombs

* See page 265.

of the early Christians; and the wooden cross, with the garland of "*immortelles*," is familiar to every one who has visited Père la Chaise, or any other burying ground in a Catholic country: —

"With cross and garland o'er a quiet grave."^{*}

ESTHER.

The Russians, also, erect wooden crosses over the dead.

MRS. F.

And Southey beautifully describes a similar memorial: —

"A stone cross
Stood on Cynétha's grave, sole monument
Beneath a single cocoa, whose straight trunk
Rose like an obelisk, and waved on high
Its palmy plumage, green and never sere."

I recollect, when we were in Switzerland, being particularly struck with the churchyard at Zug. The graves are planted with flowers, and at the head of each is an iron cross, gilt, and decorated with little paintings. The effect is very striking and pretty. Bénitiers are placed about the cemetery; and, when we were leaving the church, the Swiss girl who accompanied us ran back, apologising for her absence, as she was going, she said, "*jeter de l'eau*

* Byron's *Manfred*.

"bénite sur le tombeau de sa mère;" a tribute of filial piety, which, sanctioned by her erroneous church, she never failed to pay to the memory of her departed parent.

In the Alpine passes, rude wooden crosses are often placed at intervals along the road, to indicate the direction of the road when obliterated by the snow; but we also frequently find them, in the midst of the magnificence of mountain scenery, erected as the chronicles of death; memorials of the destruction of an individual, either from the overpowering avalanche, or from the murderer's knife. On these crosses are inscribed the simple initials of the individual, and the date of the accident, preceded by the letters P. I., or, as it is sometimes carved at length on the cross, "*Perit ici.*"

"And here and there, as up the crag you spring,
Mark many rude-carved crosses near the path;
Yet deem not these devotion's offering —
These are memorials frail of murderous wrath;
For wheresoe'er the shrieking victim hath
Poured forth his blood beneath the assassin's knife,
Some hand erects a cross of mouldering lath;
And grove and glen with thousands such are rife
Throughout this purple land, where law secures not life."*

ESTMER.

When were churches first built in the form
of a cross?

* Childs Harold, Canto i.

MRS. F.

That does not appear. "In contradistinction to the heathen temples, which were usually circular, the form adopted by the early Christians for their ecclesiastical buildings was generally an oblong, in allusion, it has been said, to the shape of a ship; to remind those who worshipped therein, that as Noah and his family, by Divine favour, were saved in the first ark from the consequences of that flood which drowned the whole world, so they, having entered into the ark of the gospel, through the privileges of a new covenant, were fellow-passengers on the ocean of life, and sailing in safety from this world to a better—voyagers from time to eternity!" Be this as it may, the simple parallelogram was, in process of time, intersected by a short limb, and arranged, according to the modern disposition, in the form of a cross.

ESTHER.

Does not the word rood signify a cross?
as Southey says,—

"But who can gaze
Upon that other form, which on the rood
In agony is stretched?"

MRS. F.

Yes; from this, Holyrood House derives its

name. The rood anciently used in our churches was a carved or sculptured group, consisting of our Saviour on the cross, accompanied by the Virgin Mary on one side, and St. John on the other; though sometimes, for these last, the four evangelists were substituted, or the patron saint of the place was added. This group was placed in a gallery at the entrance of the chancel or choir, hence called the roodloft. In this loft the musicians were also stationed; and when, at the Reformation, these roods were taken down, the place, which they had occupied was used as the organ-loft or singing-gallery, as we see in many of our churches at present.

• • • ESTHER.

The early Christians used to sign their bread with the cross.

MRS. F.

The custom is alluded to by St. Athanasius, who says, "when thou art set down at table, and beginning to break thy bread, having signed it with the sign of the cross, give thanks." The cross is still sometimes marked upon the household loaf, when put into the oven; and the "hot cross bun" of Good Friday is the most popular remnant of the Roman Catholic

religion in England which the Reformation has left.

• HENRIETTA. •

You have not yet alluded, aunt, to the Roman Catholic crucifix.

MRS. F.

No; we are now come to the last use of this sacred symbol, this awful instrument of the Saviour's suffering, upon which he triumphed over death and the grave—a use which, begun “in pious condescension to the weakness of man, ended in confirming that weakness, and substituting a superstition almost heathen for the spiritual doctrine of Christianity.”* The crucifix, which was first introduced to teach religion through the senses, among those whom it was not deemed expedient to enlighten sufficiently to receive it through the understanding, has thus brought about, as a natural consequence, that •

— “Salvation's symbol ~~often~~ is adored
Than he who wrought salvation — Christ, the Lord.”

The Roman Catholics place the image of our crucified Lord before the dying person, that his last looks may be directed to this emblem of

* Milman's Life of Christ.

hope and mercy; and we find, from history, how indispensable the crucifix was always held at these times.

The unfortunate Mary Queen of Scots carried a crucifix with her to the scaffold; and ended her prayer by these words, "Even as thy armes, O Jesus, were spread here upon the crosse, so receive me into thy armes of mercy, and forgive me all my sinnes."

And the Maid of Orleans, at her death, when every form of horror was accumulated, begged the indulgence of a crucifix. An Englishman broke a stick in two parts, and made a cross: the Maid took it, kissed it, pressed it to her bosom, and mounted the pile.

ESTHER.

And we find a parallel instance in the death of the Chevalier Bayard, as given by Robertson. "Being unable to continue long on horseback, he ordered one of his attendants to place him under a tree, with his face towards the enemy; then, fixing his eyes on the guard of his sword, which he held up instead of a cross, he addressed his prayers to God; and in this posture, which became his character both as a soldier and a Christian, he calmly awaited the approach of death."

MRS. F.

It was not uncommon, in the early ages, when the hour of dissolution approached, to scatter upon the floor of the church, or elsewhere, a quantity of ashes in the form of a cross, upon which straw was sometimes laid as a bed for the dying man. Occasionally sackcloth was substituted for straw, and thus strewed with ashes. Not only churchmen, but the laity, also, observed this practice. It was termed a "bed of penitence." Upon such a bed expired two kings of France, Louis VI. and Louis IX.; and on a bed of penitence, also, did Henry III. of England breathe his last.

HENRIETTA.

Is there not a constellation called the cross?

ESTHER.

Yes; it consists of five stars, four of which form the cross; and the most northerly and southerly are always in a line with the south pole. They are, therefore, the pointers, for discerning in the southern hemisphere the southern pole, as the two stars, which are so called in the great bear, point out the northerly pole.

MRS. F.

Give me De Humboldt, and I will read you

'his account, of this constellation, the symbol of redemption, so "fitly characterized with stars in Heaven;" that "venerable signo" of which Dante also makes mention. *

"The pleasure felt on discovering the southern cross was warmly shared by such of the crew as had lived in the colonies. In the solitude of the seas, we hail a star as a friend from whom we have long been separated. Among the Portuguese and Spaniards peculiar motives seem to increase this feeling: a religious sentiment attaches them to a constellation, the form of which recalls the sign of the faith planted by their ancestors in the deserts of the New World. The two great stars, which mark the summit and the foot of the cross, having nearly the same right ascension †, it follows that the constellation is almost vertical at the moment when it passes the meridian. This circumstance is known to every nation that lives beyond the tropics, or in the southern hemisphere. It is known at what hour of the night, in different seasons, the southern cross is erect or inclined. It is a time-piece that advances very regularly

* Paradiso, c. xiv. l. 101.

† That is, they come to the meridian at nearly the same time. The *right ascension* of a heavenly body is that degree of the equator which comes with it to the meridian, and is so called, because, when at the meridian, it forms a right angle with the horizon.

nearly four minutes a day; and no other group of stars exhibits, to the naked eye, an observation of time so easily made. How often have we heard our guides in the savannahs of Venezuela, or in the desert extending from Lima to Truxillo, say, 'Midnight is past; the cross begins to bend.' "

ESTHER.

Montgomery, the poet, in an address at a missionary meeting, made a most happy allusion to this account of De Humboldt's. He said, "Humboldt, travelling over various table-lands that crown the Andes, in South America, mentions, that his company, during the hours elsewhere devoted to sleep, contemplated, with wonder and delight, the silence and tranquil solemnity of the scene below. * * * * To them the constellation of the cross, chiefly composed of stars of superior magnitude and splendour, was conspicuous over all; and when on the meridian, standing upright, it presented to the eye beholding it in heaven the brightest image of the most glorious object ever exhibited on earth—an image of that altar on Calvary on which the great sacrifice was offered up. On these occasions, therefore, the guides were wont to measure and announce the watches of the night by the progress of the heavenly

bodies; and he was often touched with peculiar feeling when he heard them say to one another, 'It is past midnight; for the cross begins to bend.' Cannot the guides of the heathen, in every region of darkness and the shadow of death, take up this saying, marching, as they do, by the light of the true cross, and say, 'in Hindostan, 'It is past midnight; for the cross begins to bend.' And does it not so in Ceylon? Hath not the cross not only begun to bend, but is it not coming down towards the horizon, till it shall touch the earth, now that the Sun of Righteousness, with healing in his wings, is rising over all the land? Go to New Holland; and plunge into its deepest wildernesses: look up thence to heaven in prayer; and with the eye of faith, and you will even there exclaim, in a transport, 'It is past midnight; for the cross begins to bend!' Go thence to Van Dieman's Land, to New Zealand, to the isles of the Society and Sandwich groups, and the same language will be heard by you from the lips of others, or you may utter it with your own, — 'It is past midnight; the cross begins to bend.' Come home by Peru and Mexico, Chili, and Paraguay, and the Brazils — those lately liberated countries from a Christianity ruling by means of the sword, the firebrand, and the scourge,

—and here, even here, on the heights of the "Cordilleras, in a more noble sense, you will hear the sound, 'It is past midnight; for the cross begins to bend.' Come home by the West Indies, and, 'O! forget not to touch upon Africa, her extremity at the Cape, her Western coast, her unpenetrated heart, her northern provinces, the empire of the false prophet! Cross over into the immeasurable regions of Asia, Tartary, China, Kamchatka, and Siberia, — in every part, if not from human voices, yet from the angel flying in the midst of heaven, having the everlasting gospel to preach, you will hear the same words, — 'It is past midnight; the cross begins to bend!'"

MRS. F. . . .

And in 'like manner may we hope that the midnight of heathenism is past, and that all nations are becoming illumined by the light of the gospel; so that the time is not far distant when the whole universe shall acknowledge the symbol of man's redemption, and "the earth shall be full of the knowledge of the Lord, as the waters cover the sea."

CHAPTER XIII.

ON THE MINERAL SUBSTANCES CONTAINED IN
PLANTS.

EXISTENCE OF SILEX, IN VEGETABLES. — IN THE RATTAN, THE
SHAVE-GRASS, AND THE SUGAR-CANE. — THE BURNT HAY-
STACK. — WATER, THE SOLE VEHICLE OF NOURISHMENT TO
PLANTS. — LEAF AND PEAT MOULD. — COPPER IN COFFEE,
ETC. — THE BAMBOO. — ARBORESCENT FERNS AND THEIR CHA-
RACTER. — THE MAHOGANY; AND AN ACCOUNT OF THE CUT-
TING OF IT IN HONDURAS. — THE TANGUIN POISON OF
MADAGASCAR, AND ITS ADMINISTRATION IN CASES OF WITCH-
CRAFT. — CONNEXION BETWEEN CATS AND WITCHES REFERRED
TO A CLASSICAL SOURCE.

"I read God's awful name emblazon'd high,
With golden letters on th' illum'd sky ;
Nor less the mystic characters I see,
Wrought on each flower, inscrib'd on every tree ;
In ev'ry leaf that trembles to the breeze,
I hear the voice of God among the trees.
With Thee in shady solitudes I walk,
With Thee in busy crowded cities ;
In every creature own Thy forming power,
In each event Thy providence adore."

MRS. BARBAULD.

HENRIETTA.

AUNT, I have just been reading in "Bertha's
Journal" a very interesting account of the
curious properties of the flinty substance called

tabasheer, which is found in the hollow stem of the bamboo.*

MRS. F.

This singular concretion consists of siliceous matter, which is deposited in the hollow joints of the bamboo, and is of more frequent occurrence among vegetables than you are perhaps aware. The skin of the Rattan Palm (*Calamus rotang*) abounds so much in siliceous matter that it will strike fire with a piece of steel, or merely by rubbing two pieces of the palm against each other. The same substance exists in teak and other kinds of wood, to which it gives a peculiarly gritty texture. The skin (or cuticle) of grapes contains a large proportion of siliceous matter; and the polishing properties of the equisetum, or shave-grass, are owing to the whole surface being composed of compact siliceous particles, which may sometimes be discerned by the naked eye in brilliant points upon the furrowed stalk,

ESTHER.

The Shave-grass (*Equisetum hyemale*) is extensively employed in polishing hard wood,

* See also page 63. of Optics, in the 1st vol. of Natural Philosophy, in the Library of Useful Knowledge, for a detailed account of tabasheer.

† This earth has received its name from the Latin for flint (siliceous), because the common flints are almost wholly composed of it; but it is found in the greatest purity in rock crystal, which is siliceous matter.

ivory, and even brass. It is usually imported from Holland, under the name of Dutch rushes. The French call them *Prêles*: they are gathered in February, and March, and grow in boggy woods. On the borders of the Lot, in France, they form a considerable article of commerce; and, in Northumberland, they are used by the dairy-maids for scouring their milk-pails.

• MRS. F.

Wheat-straw (the cuticle of which contains silex) is used, when burnt, to give the last polish to marble; and, when exposed to the blowpipe, it melts into a colourless glass, while barley-straw forms a glass of a topaz-yellow. Other grasses also contain silex.

• • ESTHER.

I recollect seeing quantities of a black looking slag, or clinker, which was found after some haystacks had taken fire, and were burnt down. I suppose that it was formed by the siliceous particles of the hay?

MRS. F.

It was so. The stem and leaves of the sugar cane also produce silex in very large quantities. The cane, after having undergone the pressure of the crushing-mills, is called, in the French sugar colonies, *bagasse**; and, in this state, it is

* The juice is termed *vesou*.

the only fuel used in boiling the sugar. The fire is very fierce, and the ashes run into a stony siliceous substance: masses of almost pure glass are formed, many inches thick, which cover the bottom of the furnace where the canes are burned.

ESTHER.

Then the silex fuses into glass, by combining with the alkali which is formed by the burning of the canes?

MRS. F.

Yes: it has been remarked, that where the canes have been raised in dry hot soils the quantity of glassy matter is most considerable.*

ESTHER.

But how is it that plants secrete so much silex? for this earth is not, I believe, soluble in water and water is the vehicle by which plants absorb all their nourishment.

MRS. F.

You are right in stating that no alimentary matter can enter a plant except through the medium of water. Without water there can be

* It may not be irrelevant to remind the reader, that as the sugar-cane is used for boiling the juice, so the whale is employed as fuel for boiling the whale oil.

no vegetation. De Candolle considers that silex is not a secretion of the plant, but a simple deposit of the ascending sap; this substance being soluble in water, although in a very slight degree. The enormous quantity of water absorbed by vegetables causes in time a considerable deposit of silex; and we consequently find that it increases in plants in proportion to their age. It exists most abundantly in the leaves, being deposited by their exhalation of the water which conveys it; and on them it generally accumulates, until it obstructs their pores, and causes their death. The deciduous trees disengage themselves from this mass of accumulated silex by the falling of their leaves, and it is this proportion of silex which causes leaf mould to be as much sought by the gardener as peat mould; the silex they both contain preventing them from forming a crust upon the the surface of the ground, like earths of a calcareous quality.

ESTHER.

I have understood that vegetables also contain iron.

MRS. Z.

And likewise copper. This latter metal has been found in the ashes of the bark (*Cinchona*), in coffee, in wheat, and in most other plants.

In coffee, copper forms 8 parts in 1,000,000; in wheat, about four parts and a half; whence it is calculated, that we annually import into Europe more than 1200lbs. weight of copper in our coffee; and that the French, in the same period, consume nearly 8090lbs. in their bread. Manganese is the only other metal which has been found in plants, and that in very small quantities.* But, as I have before observed, all these metals are not secretions of the plants themselves, but simple deposits of substances held in solution by the ascending sap. In plants with hollow stalks, the knots in their stems cause a kind of stagnation of the sap, which favours the deposit, and accounts for the flinty concretion in the bamboo of which you were speaking.

ESTHER.

Mrs. Clifford has been obliged to cut down her bamboo, as it was growing too large for her hothouse! how elegant this plant must be in its native country!

MRS. F.

The Bamboo (*Bambusa arundinacea*) is, I believe, diffused over all the countries of the torrid zone, and is applied by the inhabitants of the regions where it is found to many useful purposes.

* De Candolle, Physiologie Végétale.

The Chinese convert it into paper so exceedingly thin that it is never printed upon both sides. The airy lightness of the bamboo, its slender stem, inclining over the stream near which it grows, and bending to the slightest breeze, give an elegance and grace to this tree of which we can form no idea from the small specimens in our hothouses. I have understood that the bamboo and the tree-ferns are the two vegetable groups which most strike the eye of a traveller on his arrival in a tropical climate.

HENRIETTA.

Do the ferns, then, grow very large in the tropics?

MRS. F.

Yes; there are at least twenty-five species of majestic ferns which rise to the height of trees. The tallest among these is *Cyathea speciosa*, of the Isle of Bourbon, which sometimes attains an elevation of thirty-five feet; the stalk alone being from twenty-two to twenty-four feet high. The *Dicksonia* also arrives at very large dimensions. One species (*D. culcita*), which is found in Madeira, and another (*D. antactica*), which is a native of New Holland, have stalks eighteen feet in height. A third species (*D. arborescens*) grows in such profusion round a lake in the island of Fayal, one of the Azores, that the

silky down of its stems is used by the principal inhabitants of the island for stuffing their mattresses.* This lake is at the bottom of a crater on the summit of the island; for the arborescent ferns, although natives of the tropics, prefer a more moderate temperature.

ESTHER.

And, as the higher the elevation the lower the temperature, I suppose they are often found in mountainous situations?

MRS. F.

Yes; their principal habitat is upon mountains from 2000 to 3000 feet above the level of the sea, and, in South America, they accompany the Bark, that most valuable of medicines.† The arborescent ferns resemble the palms in appearance; but their stems are less straight and more knotty, and their foliage more delicate and transparent.

ESTHER.

Mamma, I have been reading this morning an interesting account of the mahogany, and the manner in which it is felled.‡ As you are

* Hooker's Botanical Miscellany, vol. iii. p. 67.

† Humboldt, Tableaux de la Nature.

‡ See Hooker's Botanical Miscellany, vol. i. p. 21., for the following account.

at leisure, this afternoon, I will, if you please, describe it to you.

MRS. F.

We shall all be very glad to hear your description, Esther: mahogany is the most useful wood we import; for, independently of its being converted into furniture, it has many other valuable qualities. The boats which Sir John Franklin took with him from England to the Arctic sea were constructed of mahogany; this wood (from the thinness of its planks) being esteemed as the lightest and most profitable in proportion to its strength. The Spaniards used to build their ships of mahogany, as they considered it bullet-proof, and almost indestructible by worms or in water.

FREDERICK.

Where does mahogany come from?

MRS. F.

It is chiefly brought from the Honduras, but it also grows in the islands of Jamaica and St. Vincent; and the old Jamaica mahogany is, I believe, still esteemed more valuable than that which is afforded by any other country.

ESTHER.

The Mahogany (*Swietenia mahagoni*) grows

in dense forests with other large trees and underwood. The account I was reading states, that, in the Honduras, a tree is not considered fit for cutting, until 200 years have elapsed from its first appearance above the earth. The operation of cutting begins in the month of August. The labourers are divided into parties of from twenty to fifty, among whom one is selected, who is termed the huntsman. This person is always the most intelligent of the party; and his occupation is to search the woods, and discover where the mahogany is most abundant. Early in August the huntsman sets out on his important mission; and, having cut his way into the most elevated situation in the forest, he climbs the tallest tree, from the top of which he surveys the surrounding country. At this season of the year, the leaves of the mahogany are of a yellow-reddish hue; and a practised eye can readily discern them, even at a great distance. Having thus ascertained the part of the forest where the mahogany trees are most abundant, the huntsman directs his steps thither; and without compass, or any other guide than what his recollection affords, he never fails to reach the exact spot at which he aims. On some occasions, much stratagem is necessary, on the part of the huntsman, in order to prevent others from availing themselves of the advantage

of his discoveries; for, if his steps be traced by those who are engaged in the same pursuit, all his ingenuity must be exerted to divert them from the track.

MRS. F.

And this must be very difficult among people who are entirely aware of the arts he may use, whose eyes are so quick that the slightest turn of a leaf, or the faintest impression of a foot, is unerringly perceived: even the dried leaves which may be strewed upon the ground often help to conduct to the secret spot.

ESTHER.

Yes; and thus it frequently happens that the huntsman suffers the disappointment of finding the fruit of his labours enjoyed by another.

HENRIETTA.

How singular, that persons should be able to trace each other by such slight marks as these!

MRS. F.

“In rude and savage life, remarkable examples occur of the effect of habits of minute attention to those circumstances to which the mind is intensely directed, by their relation to the safety

or advantage of the observer. The American hunter finds his way in the trackless forests by attention to minute appearances in the trees, which indicate to him the points of the compass. He traces the progress of his enemies or his friends by the marks of their footsteps; and judges of their numbers, their haltings, their employments, by circumstances which would entirely escape the observation of persons unaccustomed to a mode of life requiring such exercise of attention." *

HENRIETTA. ^A

I recollect, Esther, your telling us that the Indians of America discern the points of the compass by the moss on the trees†; but I will no longer interrupt you.

ESTHER.

The mahogany trees being discovered, the next operation is the felling of a sufficient number* to occupy the party (or gang, as they are termed,) during the season. The mahogany tree is generally cut about ten or twelve feet from the ground, a stage being erected for the axeman employed in levelling it. A sufficient number being felled, the next operation is to cut a road to convey them to the nearest river,

* Abercrombie on the Intellectual Powers.

† First Series, p. 355.

where the mahogany establishment for the season is fixed. Each mahogany work forms in itself a small village, in which much rural taste is frequently displayed, although the houses are often completed in a single day, with no other implement than the axe. The work of making a road of communication from this establishment, to the centre of the spot where the trees are felled, is generally very laborious. The workmen commence by clearing away the underwood with cutlasses; and the larger trees are then felled by the axe, as close to the ground as possible; the trunks of these serving to construct whatever bridges may be required in the formation of the roads. If the mahogany trees should be much scattered, the labour and extent of the road-cutting is immense; and it not unfrequently happens that miles of road, and many bridges, are made to a single tree, which tree may ultimately yield but one log. The roads are generally completed by the month of December, when each mahogany tree is sawed across in logs of a convenient length for transporting.

FREDERICK.

That is what carpenters call cross-cutting.

ESTHER.

The workmen are guided in the length to

which they reduce the timber by its thickness, in order to equalise the weight of the logs for the convenience of transport. The sawing being completed, the timber is then squared; and, in the month of April, begins the process of drawing out the wood to the river.

MRS. F.

Why does it not commence earlier?

ESTHER.

Because, although the rains usually terminate about February, yet, from the ground being so saturated with wet, the roads are seldom firm enough for use before the first of April. The success of the cutter's work entirely depends upon the continuance of dry weather: a single shower of rain would materially injure his roads, and render them impassable. The logs are conveyed upon trucks, which are each drawn by seven pairs of oxen. From the intense heat of the sun, the cattle are unable to travel in the daytime. Nothing can present a more singular spectacle than the drawing down the mahogany to the river. Each gang, of about forty men, has six trucks, which require numerous attendants for driving, loading, feeding, &c. The six trucks, with their long train of oxen, will occupy an extent of road of a quarter of a mile; and the bufflocks, the men

with their lighted torches, blazing through the wild scenery of the forest, the rattling of chains, the cracking of whips; all in the still hour of midnight, give the whole procession the air of a theatrical exhibition. When the trucks arrive at the river's side, the logs are marked with the owner's name, and thrown into the water. By the middle of June the rivers swell, with the periodical rains, to an immense height; and the logs then float down a distance of 200 miles, being followed by the gang in flat-bottomed canoes, to disengage them from the branches of the overhanging trees. A bar is placed across the river to arrest their progress; and each gang separate their own logs and make them into large rafts, in which state they are conveyed to the wharfs of the proprietors, when they undergo a second process of the axe, after which they are ready for shipping. The greatest quantity is sent to England.

HENRIETTA.

Thank you, Esther, for this entertaining account.

MRS. F.

In the same valuable work*, from which Esther has been quoting, there is an interesting description of the Tanghin poison of Ma-

Madagascar, which I forgot to mention in our enumeration of poisons last year.*

This poison is the seed of a tree (*Tanghinia veneniflua*. Petit Thouars.), which grows abundantly throughout Madagascar. The tree is described as about thirty feet high, with rose-coloured and white flowers, somewhat resembling those of the *Cerbera*, to which genus the tanghin was first referred. It bears a drupe, or fruit, resembling a plum, composed of a yellow fleshy outside, with a nut of a bitter flavour. This nut contains the poison, which is one of the swiftest and most deadly known. It is very often employed by the people of Madagascar for the detection of theft, and as an ordeal, in any case where sufficient proof of a crime is wanting. The kernel is bruised, and mixed with the juice of the banana, which the accused person is compelled to drink. It is in the province of Emerina that its application is most frequent; and it is there chiefly applied as a test in great crimes, such as conspiracy against the king, sorcery, &c.

QUESTIONS.

Q. Is it often administered?

MRS. F.

In 1830, the Queen of Madagascar ordered an

* First Series, Chapter XIII.

universal ordeal of the tanghin throughout her dominions, assigning as a reason for this barbarous edict that her majesty had been bewitched, and afflicted with a malady which the death of the sorcerer could alone remove. All her principal officers, the members of the royal family, diviners, and others, to the amount of some hundreds, were compelled to drink the tanghin. The ordeal was commenced in every town and village, in order "to cleanse the land from sorcerers." Many perished; but no rich persons fell victims to the administration of the poison, having it in their power to sacrifice whom they please; and those who could not purchase their lives were selected as victims. The whole account of this murderous transaction, so revolting to humanity, is given in Dr. Hooker.

ESTHER.

I was not aware that these people had such faith in magic and witchcraft.

MRS. F.

Yes; the belief in sorcery is universal among the Madagasses, and no limit is assigned to its power. Cats and owls were formerly not allowed to exist among them, because they

Cats have recently been permitted to enter the dwellings.

aver that no sorcery can be easily practised without their agency; and that the sorcerers wander about at night, and associate with these animals. Indeed, so deeply rooted is the belief of witchcraft in the minds of the Madagasses, from the sovereign to the slave, and so blindly are they led by this belief, that nothing less than the power of divine truth can dissolve the spell, and nothing but the light of the gospel can elevate their minds from such debasing and revolting superstition.*

ESTHER.

How universal the idea appears to be of associating cats with sorcerers!

HENRIETTA.

From the pictures in our nursery tales of the witch and her cat riding through the air upon a broomstick.

MRS. F.

This popular belief, like many others, may

* The British Government have made great efforts to civilise this country, and to instruct its inhabitants in the Christian religion. Missionaries have been sent out; and the success of the services rendered to Madagascar by Mr. Hastie, the general agent, gives every promise that the civilisation of this nation may not be far distant.

be traced to a classical origin. When all the gods concealed themselves under the forms of animals, to avoid the fury of Typhon, Diana metamorphosed herself into a cat*: hence this triform goddess patronised the cat, more especially in her character of Hecate, the goddess of the infernal regions, directress of magic and enchantment, and patroness of witches; and, perhaps, from a kindred feeling, (as having herself once assumed that semblance,) when Galinthia was transformed into a cat, Hecate took compassion upon her distress, and made her priestess of her rites. Hence there arose, as you see, a kind of *double* connexion between witches and cats; and thus you perceive how the metamorphosis of a pagan goddess has gradually dwindled down into the more humble superstition of later ages.

ESTHER.

The Templars were accused of holding com-

* Indeed, the fable may be traced to even an earlier period; for the metamorphosis of Diana is only copied from that of Bubastis, the Egyptian Goddess, of whom Diana was the Grecian and Roman type. Bubastis transformed herself into a cat; and a cat was the symbol under which she was worshipped by the Egyptians; who did not, as is commonly said, adore the sacred animals *themselves*, but worshipped them only as the types of those divinities, or mystic beings, of whom they were the living emblems, and with whom, either by their qualities or their forms, they were supposed to have some distinct relation. (See Champollion.)

munication with an evil spirit, who assisted in their orgies, also, under the form of a cat.

MRS. F.

The possession of nine of these animals was, at any time, sufficient to convict an old woman of witchcraft. In the beginning of the sixteenth century, a poor wretch, accused of bewitching the daughter of the Countess of Rutland, was brought to trial for the offence, with a cat, named Rutterkin, her constant attendant and confederate in works of evil.* Many similar cases are on record; but we will hope, for the honour of human nature, that the days of witchcraft are past, and the "brinded†" or gray familiar, which presided at the incantation, and the black cat, whose brains were so necessary to the spell‡, are fast sinking into oblivion. Indeed, they may be said now to exist but in the pages of the antiquary, and in the memory of our early days, when such tales of wonder delight the youthful fancy. We then read how cats and witches exchanged forms as expediency

* See note to Macbeth, in Johnson and Steevens's Shakespeare.

† "Thrice the brinded cat has mewed."

Witches in Macbeth, Act IV. Scene 1.

‡ "Yet went I back to the house again,
Kill'd the black cat, and here is his brain."

Witches' Song, BEN JONSON.

required; how they made excursions together to Egypt, that land of enchantment; and the cat was as necessary an attribute of the witch, as she journeyed through the air, as the broomstick upon which she rode. .

CHAPTER XIV.

THE SEVEN CHURCHES OF ASIA.

THE SEVEN CHURCHES. — EPHESUS. — ST. PAUL. — ST. JOHN
 THE THEOLOGIAN. — LEGEND OF THE SEVEN SLEEPERS. —
 PERSECUTION OF THE CHRISTIANS BY DIOCLESIAN. — HIS
 BATHS. — ST. POLYCARP. — ASIARCH. — PERGAMOS. — THY-
 ATIRA. — ITS DYES. — SARDIS. — PHILADELPHIA. — LAODI-
 CEA.

“ Que sont devenues ces fameuses églises-mères d’Alexan-
 drie, d’Antioche, de Jérusalem, de Constantinople, qui en
 avoient d’innombrables sous elles ? C’est là que les conciles
 ont prononcé ces oracles qui vivront éternellement. Cette
 terre étoit arrosée du sang des martyrs : le désert même y
 florissoit par ses solitaires. Mais tout est ravagé sur ces mon-
 tagnes autrefois décollantes de lait et de miel, et qui sont
 maintenant les cavernes inaccessibles des serpens et des basilics.
 Que reste-t-il sur les côtes d’Afrique, où les assemblées d’évêques
 étoient aussi nombreuses que les conciles universels, et où la
 loi de Dieu attendoit son explication de la bouche d’Augustin ?
 Je n’y vois plus qu’une terre encore fumante de la foudre que
 Dieu y a lancée.” FÉNÉLON.

ESTHER.

MAMMA, are there many remains existing of
 the seven churches of Asia ?

MRS. F.

Modern travellers find most of these once
 celebrated cities in a most desolate condition ;

but enumerate the seven churches, Esther, in the order in which they are recorded in the Revelations *, and I will take each in succession, and tell you what is known respecting it.

ESTHER.

The seven churches of Asia were Ephesus, Smyrna, Pergamos, Thyatira, Sardis, Philadelphia, and Laodicea.

MRS. F.

Or, as Chateaubriand † designates them, Ephesus the patient; Smyrna the afflicted; Pergamos full of faith; and Thyatira the charitable; Sardis; Laodicea; and Philadelphia, beloved by him who possessed "the key of David."

Let us, then, begin with Ephesus: you can all tell me for what this city was celebrated?

HENRIETTA.

For the temple of Diana.

MRS. F.

Yes: this wonder of the world was destroyed in the third century by the Goths, in their third naval expedition. Ephesus, once the metropolis of Ionia, and the emporium of Asia

* Chapters ii. and iii. † *Maîtres*, livre ix.

Minor, is now described as a most forlorn spot; a few stones, and some miserable mud cottages, are all that remain of this ancient city. The epistle to the Ephesians is read throughout the world; but there is none in Ephesus to read it now. Their candlestick has been removed out of its place; and the great city of the goddess Diana is no more.* It is singular that its modern name is Aiasaluk, that is, "little moon or crescent," in allusion, probably, to the worship of Diana, as well as to the banner of the Turks.

ESTHER.

This church was, I believe, planted by St. Paul?

MRS. F.

It was so; and he was driven from it, as we read in the Acts †, by Demetrius and his fellow-craftsmen. St. John made his habitual residence in this city. At Ephesus he was seized and carried to Rome, whence he was exiled to the island of Patmos. After the death of Domitian, St. John obtained permission to return to Ephesus; but his great age had so much enfeebled him, that he was obliged to be carried

* Keith on the Prophecies.

† Chapter xix.

into the assembly of the faithful. You recollect what was always his parting benediction, when his infirmities no longer permitted him to perform the offices of religion ?

ESTHER.

Yes; all he said was, " My little children, love one another ;" and, when asked by his disciples why he so constantly repeated the same exhortation, he replied, " It is what our Lord has commanded us to do ; and, provided we follow his commands, we require nothing more."

MRS. F.

It was at Ephesus that St. John died, A. D. 99, at the age of ninety-four : he was also buried near this city.

ESTHER.

Is St. John the Evangelist the same person as St. John the Theologian ?

MRS. F.

Yes : St. John the " Evangelist " is also styled the " Theologian " and the " Divine," from his writings being of a more doctrinal nature than those of the other writers of the New Testament. The mosque at Ephesus is supposed to be on the site of the church of St. John. The early church here was a very small one ; but it

was rebuilt by the emperor Justinian, and was so magnificent as to equal in splendour the church of the Apostles at Constantinople. It was, doubtless, constructed from the spoils of the great temple. The front of the present mosque is faced with the same brilliant white marble which made the temple of Diana shine like a meteor; and has within it rich columns, which are of the same Parian marble that composed the 127 Ionic columns, each sixty feet high, which supported the wondrous structure of the Ephesian Diana. The prison of St. Paul, the tomb of Timothy his companion, who was the first bishop of Ephesus, and the cavern of the Seven Sleepers, are among the objects of interest still pointed out to the traveller.

HENRIETTA.

Who were the Seven Sleepers, aunt?

MRS. F.

The story of the Seven Sleepers is one of the oldest legends of the church, and is thus related:—"When the emperor Decius persecuted the Christians, seven noble youths of Ephesus concealed themselves in a spacious cavern, in the side of an adjacent mountain, where they were doomed to perish by the tyrant, who gave

orders that the entrance should be firmly secured with a pile of huge stones. Tradition says they immediately fell into a deep slumber, which was miraculously prolonged, without injuring the powers of life, during a period of one hundred and eighty seven years. At the end of that time, the slaves of Adolius, to whom the inheritance of the mountain had descended, removed the stones, to supply materials for some rustic edifice; the light of the sun darted into the cavern, and the Seven Sleepers awoke. After a slumber, as they thought, of a few hours, they were pressed by the calls of hunger; and resolved that Jamblichus, one of their number, should secretly return to the city to purchase bread for the use of his companions. The youth could no longer recognise the once familiar aspect of his native country; and his surprise was increased by the appearance of a large cross, triumphantly erected over the principal gate of Ephesus. His singular dress and obsolete language confounded the baker, to whom he offered an ancient medal of Deusus as the current coin of the empire; and Jamblichus, on the suspicion of a secret treasure, was dragged before the judge. Their mutual inquiries produced the discovery, that two centuries were almost elapsed since Jamblichus and his friends had escaped from the rage of a

popular tyrant.* The bishop of Ephesus, the clergy, the magistrates, the people, and, as it is said, the emperor Theodosius* himself, hastened to visit the cavern of the Seven Sleepers, who bestowed their benediction, related their story, and, at the same time, peaceably expired. The origin of this singular fable cannot be ascribed to the modern Greeks, for the tradition may be traced within half a century of the time of its supposed occurrence. The names of the Seven Sleepers are inscribed in the Roman, the Abyssinian, and the Russian calendar: in the East their memory is preserved with reverence. Nor has their reputation been confined to the Christian world. Mahomet has introduced the legend into the Koran; the story of the Seven Sleepers has been adopted and adorned by the nations from Bengal to Africa, who profess the Mahometan religion; and some vestiges of a similar tradition have been discovered in the remote extremities of Scandinavia.†

HENRIETTA.

Thank you, aunt, for this curious story.

MRS. F.

Let us now proceed to the church of Smyrna. She had no judgment denounced against her,

* The younger.

† Gibbon, chapter xxxiii.

except the tribulation of ten days, which refers to the ten years' persecution of the emperor Dioclesian.

ESTHER.

It was he who employed the Christians to build the baths at Rome, which are called by his name.

MRS. F.

Yes; and, because they all suffered martyrdom, Pius IV. dedicated these baths to sacred uses; and the genius of Michael Angelo formed, of one of the apartments, the present beautiful church, called Santa Maria degli Angeli, the stupendous granite columns* of the old building serving as the support of the new edifice.

HENRIETTA.

What is the date of the persecution of the Christians by Dioclesian?

MRS. F.

His first edict was published in A. D. 303. One of the persecutions of the Christians by Dioclesian is selected by Chateaubriand as the period at which he fixes his tale of the Christian

* These magnificent columns, which are composed of single blocks of oriental granite, are sixteen feet in circumference, and forty-three feet in height.

persecutions, called "Les M^{ar}tyrs." It occurred only two years before the abdication of Dioclesian, and his retirement into Dalmatia; and may be chiefly attributed to the weakness of the emperor, and to the influence of the Cæsar Galerius, who was animated by a most furious hatred against the Christians. But to return to the church of Smyrna. — Favoured so highly beyond all the other churches of the Apocalypse, it is the only city which retains any comparison with its former grandeur. Unlike the more famous Ephesus, Smyrna is still a large city. It stands in a lovely bay, which has been compared with that of Naples. The ancients esteemed it the most beautiful of the Ionian cities; and Strabo, on the first view of it, exclaimed, "This is the most beautiful city in the world!" It was also extolled as the "lovely," the "crown of Ionia," the "ornament of Asia." In the reign of the emperor Adrian, the colleges of Smyrna were filled with the youth of all nations; and it was styled, "grove of the eloquence of the sages," the "museum of Ionia," the "domicile of the ^{ancient} graces and the muses." Under the Christian emperors, Smyrna ranked next to Constantinople, as well in consideration of her ancient celebrity as of the glory conferred upon her by religion. Her first bishop was St. Polycarp, who was ordained by St. John, and

who suffered martyrdom, with heroic fortitude, at the age of eighty-six.

HENRIETTA.

Would you have the kindness to give us some account of his life?

MRS. F.

With pleasure. St. Polycarp was converted to Christianity by St. John, and had the privilege of conversing with those who had seen our blessed Saviour. St. John, to whom he more especially attached himself, ordained him bishop of Smyrna, about the year 96. In 167, the persecution against the Christians increased in violence; and the pagans of Smyrna, incensed at the fortitude of the martyrs, demanded that St. Polycarp should be brought into the circus. He was accordingly taken to the amphitheatre, when the Proconsul enjoined him to deny his Saviour. St. Polycarp replied, "Eighty and six years have I served Christ, and he hath never wronged me: how can I then speak ill against my King and my Saviour?" Upon this heroic answer, the people tumultuously demanded of Philip the Asiarch, that a lion should be let loose to devour the Christian. Philip excused himself, upon the ground that the exhibitions of the amphitheatre were at an end.

Finding the Asiarch would not accede to their wishes, the flames were resorted to; and such was the fury of the populace, that they fetched wood from the baths and the town below to make the fire. This was in the year 167; a year as awfully remarkable for the overthrow of the city of Smyrna by an earthquake. When the fire was prepared, St. Polycarp desired that he might not be nailed to the stake; for he said, "He who will give me fortitude to endure the fire, will also grant me strength to remain firm, without your employing nails." His wish was complied with, and he was bound only. When he had finished praying, the fire was lighted, and his body was burned in the middle of the fire to satisfy the Jews, who desired that it might not receive the rites of sepulture. St. Polycarp was the great friend of St. Ignatius, and St. Irenaeus was one of his disciples; but we will, some day, read the lives of the early Christian martyrs, for they are full of interest and instruction.

ESTHER.

Thank you, mamma. I did not like to interrupt you, in your life of St. Polycarp, but who was the Asiarch?

MRS. F.

The Asiarch was an officer appointed annually

to preside over the games of a particular province. It would appear that this dignity was partly magisterial and partly sacerdotal.

Smyrna has not had "her candlestick" removed. It is still a large city, the emporium of the Levant, the most considerable seaport on the coast. Her population is large; and she has churches both Greek, Catholic, and Protestant. Smyrna is fast returning to her pristine importance, while her sister churches are desolate, and without inhabitants.

HENRIETTA.

The church of Pergamos is next.

MRS. F.

Pergamos continues to exist, and so does Thyatira*, but both miserably degraded. Sardis, which was warned in vain — Sardis, the first Asiatic city which was converted by the preaching of St. John, the capital of Lydia, the seat of the empire of Cræsus — Sardis has now only a few huts, scattered among the ruins, which are

* In the Acts of the Apostles, we are informed that Lydia was "a seller of purple, in the city of Thyatira;" and the discovery of an inscription here, which makes mention of "the dyers," has been esteemed important in connexion with this passage. Even at the present time, Thyatira is famous for dyeing; and the scarlet cloths which are dyed here are considered superior to any others furnished by Asia Minor; and large quantities are sent to Smyrna for the purposes of commerce.

occupied by the 'Turkish herdsmen,' who are its only inhabitants. As the seat of a Christian church it is lost: no Christians reside on the spot. A modern traveller * observes, "If I should be asked what impresses the mind most strongly on beholding Sardis, I should say its indescribable solitude, like the darkness in Egypt, darkness that could be felt. So the deep solitude of the spot, once the 'lady of the kingdoms,' produces a corresponding feeling of desolate abandonment in the mind, which can never be forgotten. Connect this feeling with the message of the Apocalypse to the church of Sardis, 'Thou hast a name that thou livest, and art dead. I will come on thee as a thief; and thou shalt not know what hour I will come upon thee;' and then look round, and ask, where are the churches, where are the Christians, of Sardis? The tumuli beyond the Hermus reply, 'all dead;' suffering the infliction of the threatened judgment of God, for the abuse of their privileges."

HENRIETTA.

Philadelphia is the next church mentioned by St. John.

MRS. F.

Philadelphia had been faithful in the hour of

* Arundell's Discoveries in Asia Minor, vol. i. p. 29.

temptation, and Philadelphia, alone, long withstood the power of the Turks. The captivity or ruin of the seven churches of Asia was consummated, by the conquests of the Turks, in 1312. Philadelphia only was saved. In the loss of Ephesus, the Christians deplored the fall of the head of the Asiatic churches, "the extinction of the first candlestick of the Revelations: the desolation is complete; and the temple of Djana, or the church of Mary, will equally elude the search of the curious traveller. The circus, and three stately theatres, of Laodicea are now peopled with wolves and foxes: Sardis is reduced to a miserable village:" the God of Mahomet is invoked in the mosques of Thyatira and Pergamos; and the populousness of Smyrna is supported by the foreign trade of Franks and Armenians: Philadelphia alone has been saved. "At a distance from the sea, forgotten by the emperors, encompassed on all sides by the Turks, her valiant citizens defended their religion and freedom above fourscore years; and at length capitulated with the proudest of the Ottomans. Among the Greek colonies and churches of Asia, Philadelphia is still erect, a column in a scene of ruins." It is an interesting circumstance to find Christianity more flourish-

* Gibbon, chapter lxiv.

ing here than in many other parts of the Turkish empire: there is still a numerous Christian population, and divine service is celebrated every Sunday in five churches. Nor is it less interesting, in these eventful times, and notwithstanding the general degeneracy of the Greek church, to learn that the present bishop of Philadelphia accounts "the bible the only foundation of all religious belief," and is spoken of most highly by modern travellers. Philadelphia is now called Allah-shehr, the city of God, which, when viewed in connexion with the promises made to that church and its members, is, to say the least, a singular occurrence.

ESTHER.

We next come to Laodicea. All the other churches were found worthy of some commendation, but, in what the spirit said to the lukewarm church of Laodicea, there was not one word of approval.

MRS. F.

In Laodicea a flourishing church had been planted in the time of the apostle Paul; but it is now utterly desolate; its only inhabitants are wolves, jackals, and foxes. The ruins, however, bear witness to its former greatness. Laodicea was the metropolis of the greater Phrygia, and was, as heathen writers attest, an extensive, and

very celebrated city. It rose to eminence about the beginning of the Christian æra. It was the mother-church of sixteen bishoprics. Its three theatres, and the immense circus, capable of containing thirty thousand spectators, the spacious ruins of which are still to be seen, give proof of its ancient wealth and population. It collected a considerable revenue from its flocks of sheep, celebrated for the fineness of their wool. There are few ancient cities more likely than Laodicea to preserve many curious remains of antiquity beneath the surface of the soil; the earthquakes to which it was subject, rendering it probable that valuable works of art have often been buried beneath the ruins of the public and private edifices. Such is Laodicea, without any human inhabitants, except, occasionally, wandering Turcomans pitch their tents in its amphitheatre.

ESTHER.

Then Smyrna is the only city which retains any degree of its former greatness?

Yes; such as I have described is the present state of the seven churches. "Ephesus, the boast of Ionia, the eye of Asia, has long been in the darkness of primitive non-existence: the streams of her commerce, like her own

numerous ports, are all dried up. The proconsular chair of Laodicea is now occupied by the vulture and the jackal. At Sardis, where once a Solon reminded Cræsus of his mortality, the solitary cucurbit awakens the same reflection; and if Philadelphia, Thyatira, and Pergamos continue to exist, it is in a state of being infinitely degraded from that which they once enjoyed. Smyrna alone flourishes still. Her temples and public edifices are no more: but her opulence, extent, and population are certainly increased."†

Such have been God's dealings with his churches,—dealings which may afford useful instruction to the rest of the world; for, "If judgment begin at the House of God, what shall the end of them be that do not obey the Gospel of Christ?"‡

" Revive thy dying churches, Lord,
And bid our drooping graces live;
And, more, that energy afford
'A Saviour's blood alone can give "

* An owl, so named from its note, which is very shrill.

† Arundell's *Asia Minor*, vol. ii. p. 357.

‡ 1 Peter, chapter iv. verse 17.

CHAPTER XV..

ON

EARTH ROUND THE TRUNK OF A TREE. — SPONGIOLES. — DISTANCE AT WHICH TREES SHOULD BE WATERED. — OLIVES IN TUSCANY. — SCOLETUS DESTRUCTOR. — WYCH ELM. — PLANTS CELEBRATED IN WITCHCRAFT. — THE NETTLE AND OTHER STINGING PLANTS. — RESINOUS POW. OF THE BLACK CURRANT. — GUM-LADANUM. — RUSSIAN LIATHER. — BIRCH WINE AND MAPLE SUGAR. — BIRD'S-EYE MAPLE. — BIRCH — ITS POWER OF RESISTING COLD. — ITS USES IN LAPLAND — IN NORWAY. — BIRCH SOUP. — BARK BREAD. — ROOTS OF THE WATER-LILY. — CHRISTOPHER OF BAVARIA, THE BARK-KING. — EAST MATS. — FINE TREES — LONGEVITY OF TREES. — THEY NEVER DIE OF OLD AGE. — EXTERNAL CAUSES OF THE DEATH OF TREES. — INJURIES THEY RECEIVE FROM MEN AND ANIMALS, FROM VEGETABLE PARASITES, AND FROM EACH OTHER.

— dry and dead,
Still clad with reliques of its trophies old,
Lifting to heaven its aged hoary head,
Whose foot on earth hath got but feeble hold.”
SPENSER.

ESTHER.

MAMMA, how this beautiful elm is dying !

HENRIETTA.

It is because the earth has been raised round it. The tree might have been saved, if a little

wall had been built at a short distance from the trunk, to prevent the earth from decaying the stem.

MRS. F.

This plan would not have succeeded, Henrietta, as experiment has proved, in the case of the trees in Hyde Park, which were so treated; but without success, as all vegetable physiologists could have predicted, for the expedient was founded upon wrong principles. A tree, so filled up, does not perish, as is commonly believed, from the reason which you assign, viz., the decay of the stem, but from the sudden embankment of the earth, which excludes the free access to its roots of the atmospheric air, so essential to their life and health.

HENRIETTA.

Do the roots of plants, then, require air?

MRS. F.

A certain quantity is necessary to the roots, as well as to the other parts of a tree. Seeds will not germinate, nor bulbs shoot, if planted too deep. Indeed, it is a complete error to suppose that trees penetrate the earth to a great depth. Except in a few instances, such as the baobab, which grows in the sand *, four or five feet will

* First Series, Chapter IV.

be often found to exceed the depth of the roots of trees of from sixty to eighty feet in length.* Roots spread much more in an oblique or horizontal, than in a vertical, direction, in order that they may have the full benefit of the oxygen of the air.

ESTHER.

Then this, I imagine, is the reason that loosening the soil is so conducive to the health of trees as well as of other plants?

MRS. F.

Yes; the more compact the soil, the less deep a tree should be planted. In stiff clay, therefore, we should neither sow nor plant so deep as in sand; and, if a tree be planted too low in the ground, it will often throw out new shoots towards the surface, and the old ones cease to perform their functions; but when a tree is too old to send up new roots, it becomes *stagnant*, (as the foresters term it,) and from the summit, decay and death gradually extend to the rest of the tree.

I therefore think we have now proved that the elm is not dying from the decay of its bark, but because the roots, finding themselves suddenly covered over, and excluded from the atmos-

* Burnett, in Journal of the Royal Institution.

pheric air, before they have time to send up fresh roots nearer the surface, become suffocated, and the death of the tree is the consequence.

ESTHER.

It is not by the whole surface of the root that a tree absorbs nourishment, but by the tender tips or extremities, which botanists term spongiolcs; hence the necessity, in transplanting, of preserving these delicate organs or fibres, which are too often carelessly destroyed.

MRS. F.

This explains why trees with very close foliage do not perish from drought in dry summers, when the earth becomes like dust underneath them, from their foliage turning off the rain.

HENRIETTA.

How?

MRS. F.

Because the roots near the stem are inactive, and have little to perform, as preservatives of life, except acting as conduits: the whole process of absorbing nourishment goes on through the spongiolcs, which, being at the extremities of the roots, are placed beyond the influence of the shade, and extend wherever moisture is to be found.

ESTHER.

'Then the roots of trees usually extend to the same distance as the branches, from the trunk of the tree?'

MRS. F.

Yes; the length of the branches is, in general, equal to the length of the roots; hence, when we water a tree, we should not do it immediately round the trunk, but at a distance proportionate to a circle, drawn round the tree, of the same diameter as its branches, and then the moisture sinks into the ground precisely where the spongioles are placed which are to take it up. Hence, you see, that trees have the full advantage of the rain to their roots, how dense soever may be their foliage.

FREDERICK.

Then, in placing manure round a tree, we should be guided by the same principle, and lay it in a circular trench, corresponding to the length of the branches.

MRS. F.

Precisely so; and the intelligent agriculturists of Tuscany carefully observe this rule in manuring their olive-trees, and thus considerably economise the material.*

* De Candolle, *Physiologie Végétale*.

ESTHER.

One more conclusion we may also draw from this principle, and that is that, if a plant be placed very near the trunk of a large tree, it will succeed better than if placed near the extremity of its branches.

MRS. F.

Yes; De Candolle made the experiment. He planted two rows of young fir round an old willow; one row immediately round its trunk, the other at a distance corresponding with the circumference of its branches. The whole of the outer row withered, while those near the trunk lived, although shaded from the full influence of the sun and dew.*

FREDERICK.

Here is a little beetle, running up the trunk of the tree.

MRS. F.

It is the *Scolytus destructor*, which committed such ravages among the elms of St. James's Park, by feeding upon the inner part of the tree. When we return to the house, I will show you a magnified representation of the insect in Curtis's British Entomology†, where its habits are fully described. It commits the injury in

* De Candolle, p. 1472. † Vol. I. plate 43.

its larva state, when, by feeding upon the liber and the young wood, it separates the bark from the tree. The woodpeckers are thus enabled to detect the larvæ of the coleoptera upon which they feed, by the hollow sound given out by the bark when struck with their beaks.

HENRIETTA.

This tree is of the kind which we call the Wych elm (*Ulmus montana*).

MRS. F.

Yes, and it is also sometimes termed the Hertfordshire elm, being very frequent and luxuriant in that county. The elm tree, it appears, was the subject of many superstitious ceremonies among our Saxon ancestors, who carried them to such an extent that King Edgar issued a canon, by which he decreed that every priest should abolish such practices. Hence, probably, the denomination Wych or Witch elm, by which this species is known.

ESTHER.

Many of our British herbs were much celebrated in the mysteries of witchcraft. The elegant little Enchanter's Nightshade (*Circæa lutetiana*), which is often found in churchyards, had a high reputation: then there was the fabled mandrake, conjectured to be the Bryony

(*Bryonia dioica*), the root of which was always drawn from the ground by a dog, as it screamed during the operation *, and caused the death of the animal who pulled it up: then there was the Pæony root (*Pæonia corullinâ*), of which the anodyne necklaces for children are still, I believe, made; and the Vervain (*Verbena officinalis*), which, as its Celtic root, *ferfaen* †, implies, restrained or controlled the fairy, or evil spirit.

“ *vervain* and dill
Hinder witches of their will.”

MRS. F.

The vervain has been very generally employed in superstitious rites. It was highly venerated by the Druids; among the ancient Persians, the Magi held branches of vervain in their hands when they worshipped the sun: the ancients rubbed the altars of Jupiter with this plant, and used it in divers divinations: it was esteemed as reconciling enemies, and was worn by heralds, when they went out to proclaim peace or war. So Drayton:—

“ A wreath of vervain heralds wear,
Amongst our garlands named,
Being sent that dreadful news to bear,
Offensive war proclaimed.”

* “ Like shrieking mandrakes torn from out the earth.”

SHAKESPEARE.

† i. e. Restraint of the wind, which means the giant, fairy, evil spirit, or witch (De Theis).

ESTHER.

Honesty (*Lunaria*) was also celebrated for its magical virtues:—

“Enchanting lunary here lies,
In sorceries excelling.”*

And Chaucer mentions also agrimony (*Agrimonia*) and valerian as used in incantation:—

“And herbes coude I telle ke many on,
As egremaïne, valerian, and lunarie.”

Agrimony and vervain are still in high repute among the collectors of simples for their medicinal virtues.

HENRIETTA.

Take care, Frederick, or that nettle will sting your foot.

ESTHER.

As a poet says, —

“*Urtica* flings
Her barbed shafts, and darts her poison’d stings.”

MRS. F.

But he is wrong in the epithet “barbed,” for the sting of the nettle is composed of one straight, stiff, needle-like hair, rising

* Drayton.

from the poison-chamber in which the deleterious juice the nettle secretes is collected and stored up; and which these hairs, when pressed, have the power of emitting. This sting, doubtless given to the nettle to keep off aggression, has a striking resemblance in its structure to the tooth of the viper, and the sting of the bee.



Magnified representation of the sting of the nettle.

ESTHER.

Does the sting vary in form?

MRS. F.

Yes, it differs in different plants; and although, in our native nettles (*Urtica dioica* and *urens*), it produces an uneasy sensation only, yet, in some of the Indian species, it has caused locked jaw, and even death itself, under excruciating agony, the effect being said to resemble that of boiling oil flowing over the part affected.*

ESTHER.

There are two plants in our garden, the *Loasa* and *Blumenbathia*, which sting very severely. The other day I accidentally rubbed

Lindley. *

my hand against a plant of *Loasa placcii*, and you see I have still the marks upon my fingers, although it is nearly a fortnight since it happened.

MRS. F.

The nature of the caustic fluid, excreted from these chambers or glands of the stinging plants, is yet little known, nor has much been ascertained of many others given out by various plants. The leaves and fruit of the black currant (*Ribes nigrum*), for instance, are covered with resinous dots, which appear to issue from glands, and which give the peculiar taste and smell of this fruit.

ESTHER.

The gum-ladanum is procured from several of the cistus tribe, particularly from *Cistus creticus*: it is collected by beating the leaves and bark of the tree, in damp weather, with leathern thongs, to which the ladanum adheres; a mode of procuring it which was adopted by the ancients, who were also careful in combing off such as was found sticking to the beards of their goats, which browsed upon the cistus.*

MRS. F.

And the rind of the birch gives out a resinous

* Herodotus, Thalia.

matter which, in the spring, diffuses a balmy odour, and caused the tree to be characterised by Burns as the "fragrant birk." It is this substance which communicates its smell to the leather tanned with birch-bark, and imparts the peculiar odour to the leather of Russia, in which country the birch is used in the process of tanning.

ESTHER.

I know no more graceful tree than a drooping birch, as Sir W. Scott describes it:—

"Where weeps the birch of silver bark,
With long dishevelled hair."

FREDERICK.

I have often seen the birch-bark canoes, made by the North American Indians. " "

MRS. F.

Yes, they apply the birch to a variety of useful purposes. The birch affords a weak wine, for procuring which the trunk is wounded in the spring, when the quantity of sap it yields is asserted to be equal to the weight of the whole tree.*

ESTHER.

The sugar maple is cut in the same manner

* De Candoie, *Physiologie Végétale*, p. 91.

in the spring, to obtain its sap, from which sugar is prepared. I do not know if you are aware, Henrietta, that the beautiful American wood, called the bird's-eye maple, of which our chairs are made, is the wood of the Sugar maple (*Acer saccharinum*), the eyes or knots in the wood being produced by age.

MRS. F.

But to return to the birch.—This tree can resist a greater degree of cold than any other, and is found in the highest regions of the Alps, and those nearest the pole. This capacity to endure cold is attributed to the numerous layers of its epidermis* which, as you know, may be torn off in ribands. These multiplied coverings prevent the escape of the internal warmth of the tree, and keep it at a temperature above that of the atmosphere. † To the humble Laplander the Dwarf birch (*Betula nana*) is most useful. He employs it for fuel, and, covered with rein-deer's skin, it serves him for a bed. In Norway, the bark of the birch is universally placed underneath the slates, tiles, or whatever may form the exterior covering of a house, to prevent the wood beneath from decaying. All

* The epidermis is the thin membrane which covers the whole surface of a plant.

† See Chapter XVIII.

posts which, come in contact with the earth, whether bridges, gates, or fences, are always carefully wrapped round with flakes of birch-bark, for a few inches both above and below the ground. *

ESTHER.

During the Russian campaign, when the French were pressed for provisions, the cook of Eugène Beauharnois prepared so excellent a soup from the bark of the birch tree, that the prince used frequently afterwards, on his return from the campaign, to have it at his table.

HENRIETTA.

And is not bread sometimes made from birch-bark?

MRS. F.

Yes; but in Norway, where this scanty fare is most general, it is the bark of the pine, mixed up and ground with ill ripened oats, which forms the common bread of the inhabitants of the Fjelde. A recent traveller states † that he saw many trees standing with all their branches dead, having been stripped of their bark to make bread. It is the inner rind which is used, taken off in flakes like a sheet of foolscap paper,

* Laing's Residence in Norway, p. 346.

† Ibid. p. 341.

and steeped or washed in warm water, to remove its astringent principle. It is then hung across a rope to dry in the sun, and looks exactly like sheets of parchment. When dry it is pounded into small pieces, mixed with corn, and ground into meal in the handmill. It is much more generally used than would be supposed. "There are districts in which the forests suffered very considerable damage in 1812* and 1814, when bad crops, and the war then raging, reduced many to bark-bread. The Tjelde bonder use it more or less every year. It is not very unpalatable, but it is very costly," as the tree is left to perish on its root.

ESTHER.

In Sweden, the roots of the yellow water-lily (*Nymphæa lutea*) are sometimes employed, in years of scarcity, to mix with the bread which they make from the bark of the fir* (*Pinus sylvestris*).

MRS. F.

Yes: a king of Sweden, Christopher of Bavaria†, derived the epithet of *Bark-konung*, or bark king, from a famine which occurred during his reign; and the peasants, who were obliged

* De Candolle, *Propriétés Médicales*. The roots of the yellow water-lily are the favourite food of the beaver.

† He reigned from 1441 to 1447.

to mix the bark of the fir with their flour, attributed the scarcity to their sovereign, and bestowed upon him this appellation.

ESTHER.

But, since modern chemists have succeeded in converting sawdust into an agreeable alimentary substance, there appears nothing extraordinary in these accounts of bark-bread.

HENRIETTA.

From the bark of what tree are the bast mats made, aunt?

MRS. F.

From the liber or inner bark of the lime tree. The Russian or bast mats are chiefly imported from the Baltic, where they are used for packing hemp and flax. The lime appears to be, of all the European trees, that which is capable of attaining the largest diameter; and, in Switzerland and Germany, there are many of extraordinary size; but we must read Evelyn's *Sylva* for an account of some of the largest trees upon record; those aged

"chronicles of time
By which the forest woodman marks his tale."

ESTHER.

What is the comparative longevity of the different kinds of trees?

MRS. F.

I will show you the statement of De Candolle upon the subject, in which the ages he assigns to some are rather startling. *

ESTHER.

The oak is generally estimated at 900 years.

* The monarch oak, the patriarch of the trees,
Shoots rising up, and spreads by slow degrees:
Three centuries he grows, and three he stays,
Supreme in state, and in three more decays."

MRS. F.

De Candolle gives a greater age to some oaks now living, or that have been recently cut down.

* De Candolle states that, according to the best calculations, the ages of some of the trees which have existed, or are now existing, upon the globe may be computed as follows:

	Years.
Elm - - -	335
Cypress - -	about 350
Cheirostenon - -	about 400
Ivy - - -	450
Larch - - -	576
Orange - - -	630
Olive - - -	about 700
Oriental Plane - -	720 and upwards.
Cedar of Lebanon -	about 800
Oak - - -	810; 1080; 1500
Lime - - -	1076; 1147
Yew - - -	1215; 1448; 2588; 2880

His estimates of the deciduous cypress and the baobab have been already noticed in First Series, Chap. IV. See *Physiologie Végétale*, p. 1007., where there are also some interesting details of the sizes of trees.

Strictly speaking, a tree never dies of old age. In the animal kingdom we find a limited period of existence assigned to each individual, from the gradual obstruction of those organs which are destined to nourish it: in the vegetable kingdom, on the contrary, we find no such cause for death; as a tree is always forming new vessels, which replace those that are obstructed, and is thus enabled to carry on, in its old age, all its functions, with as much vigour as in its earliest youth.

ESTHER.

Then what are the causes of the death of a plant?

MRS. F.

Almost too many to enumerate; but they all proceed from accidents or disease produced by external agency. Besides those which they receive from the hand of man, and from the elements*; animals inflict many injuries upon vegetables. A great proportion of the animal kingdom derive their whole nourishment from plants: the herbivorous animals feed upon their foliage; the larva of the cockchafer and other insects prey upon their roots; while their fruit is devoured by monkeys, rats, squirrels, snails, ants, and the numerous tribe of granivorous birds.

* Frost, wind, floods, lightning, hail, &c.

Some animals attack the vegetable world, not only for food but for shelter; such are the caterpillars, which conceal themselves under the cuticle (or external membrane) of the leaf; the larva of coleoptera, which feed upon the liber and the alburnum*; those which devour the pith of the tree, or which introduce themselves into the heart of the fruit. These are among the most formidable of the enemies against which a tree has to struggle; for their attacks are upon the interior of the plant, where they elude observation.

Again, some animals gnaw or penetrate trees for shelter alone; such are rats, squirrels, spiders, birds, and reptiles, and also the industrious beaver, which fells the trees he requires for constructing his habitation.

Lastly, the admirable instinct exhibited by animals in providing for their young is often exercised at the expense of the vegetable world. Birds carry away the leaves, &c. of trees for their nests; but, in this point of view, insects are most destructive; and the different kinds of galls and excrescences we find upon plants are so many deposits of the eggs of insects, who select our choicest fruits for the birthplace of their young. Such are a few of the direct

* Or the incompletely formed layers of wood: the perfectly formed wood is called the *heart-wood*.

injuries committed by animals: and, when we add to these the indirect mischief committed by others, as the pig, which roots up the grass, or the mole, which cuts the roots that obstruct its passage, we must admit that we have enumerated a formidable host of aggressors in the animal kingdom.

We next proceed to the injuries committed by vegetables upon each other:

Parasitical plants produce great disease, whether they belong to the insidious cryptogamia or to the higher orders of vegetables. Among the last we rank the mistletoe, the rafflesia, the dodder (*Cuscuta*), the broomrape (*Orobanche*), the bird's-nest (*Monotropa nidus avis*), the toothwort (*Lathræa squamaria*), and many more; while the cryptogamic tribe present a fearful array, too well known to the farmer under the name of mildew (*Puccinia*), smut (*Uredo segetum*), rust (*Uredo rubigo*), &c.

Nor are these the only injuries which vegetables sustain from their own kind: the plants which may be termed false parasites (because they derive no real nourishment from the tree) are amongst its enemies.

HENRIETTA.

And what are they?

MRS. F.

The ivy and other running plants, which encircle the tree to suffocation, the orchidæ, the lichens, and the mosses, may all range themselves under this class.

Trees, also, injure the smaller plants by their dense foliage, which excludes the access of air and light, by their voracious roots, which deprive the more feeble of the nourishment necessary to their existence, and by many other means, too numerous to mention.

Such, then, are the causes which occasion the disease and death of plants; and thus, although endowed with an organisation capable of indefinite existence, they are brought by exterior agency within the ever-dying, ever-living, circle of nature, in which every thing is reduced to its elementary principles, again to form nourishment to new progenys of animal and vegetable existence.

"See dying vegetables life sustain;
See life, dissolving, vegetate again."

"Every thing lives, flourishes, and decays: every thing dies, but nothing is lost; for the great principle of life only changes its form, and the destruction of one generation is the vivification of the next."*

Dr. Mason Good, in his "Book of Nature."

CHAPTER XVI.

A WALK IN THE FIELDS.

SNAIL UPON THE WINDOW. — THE FROG-HOPPER. — DEPREDA-
TIONS OF THE DOG-HOGS, JAYS, ETC. — THE PIGEONS OF ST.
MARK AT VENICE. — RECOVERY OF A FADING OF ITALIAN'S. —
CAVOVA. — THE LITTLE SEARWORT. — ACRID AND POISONOUS
JUICE OF PLANTS. — REFLECTIONS FROM NEW ION.

“ And, as they wander with a keen delight,
If but a leveret catch their quicker sight
Down a green alley, or a squirrel then
(limb the gnarled oak, and look, and climb again,
If but a moth flit by, an acorn fall,
He turns their thoughts to him who made them all.”
ROGERS'S *Human Life*

HENRIETTA.

HARK ! aunt, what a strange noise !

“ [All the party listened attentively, and heard a
harsh grating sound, succeeded by another, re-
sembling the cry of a child or cat. Presently
these noises ceased, and were followed by har-
monic tones, resembling an Æolian harp, or mu-
sical glasses. “Now I know whence these sounds
proceed,” observed Mrs. Fortescue, and she

pointed to a snail, which was slowly crossing the upper pane of glass in the window.]

ESTHER.

How can a snail occasion these sounds?

MRS. F.

They are made much in the same manner as those produced by musical glasses. The greater or less degree of slime upon the foot of the snail occasions the variations in the tones as the animal passes over the glass. Perhaps, also, in dry weather like this, there may be some particles of dust attached, either to the window pane or to the slimy foot of the snail, and these may occasion the very harsh grating noise we at first heard. I am, however, inclined to suppose that these sounds occur only under some peculiar modification of the slime; for I have known numbers of snails to be placed upon a window, in order to produce the sounds, but without success. I am very glad that I have chanced to hear them*, for I know but of one parallel instance on record†, and in that the sounds were more varied and more intense than those we have now heard.

* Fact. In an evening of August, 1835.

† See "A night alarm," in Mrs. Lee's Stories of Strange Lands.

But, Mary and Esther, I see you are prepared to take a walk : where are you going ?

MARY.

We are going to gather some plantain leaves for my rabbit, in the field beyond the wood.

MRS. F.

Then we will follow you.

[The two sisters, accordingly, set out together.]

MARY.

What is that curious little brown insect, Esther ?

ESTHER.

It is the frog-hopper, or cuckoo-spit (*Cicada spumaria*), as it is more generally called.

MARY.

Is this the animal which covers with foam the stalks of the pretty little white spring flower, the stitchwort ?

ESTHER.

The same, though it is in the larva state that this insect emits the frothy kind of matter we so often see upon the stalks and leaves of plants, more particularly of the stellaria (*S. graminea*), to which you allude. In the midst of the foam the grub resides ; forming this kind

of retreat, probably, for a defence against the larger insects whose prey it would become, and also, perhaps, in order to protect it from the rays of the sun. On removing the foam, the grub does not long remain uncovered, but soon emits more froth, to conceal itself from observation. In this retreat it goes through its metamorphoses. The winged insect is of a brown colour, and is common, but so nimble that it will spring to the height of several feet if touched.

MARY.

Here is the path on the edge of which I gather the plantain, but look, Esther, all the leaves are faded, and the plants are withered and dead.

ESTHER.

Some animal must have injured the roots: let us scrape away the earth and examine them. Oh! I see what it is; a hedgehog has been the depredator: the upper jaw of this animal is much longer than the lower; and with it he bores under the plant, gnawing the root off upwards, and leaving the tuft of leaves untouched.

MARY.

I never saw a hedgehog eating.

ESTHER.

Probably not; for these animals lie concealed during the daytime, and come out only in the evening to search for their prey. Hedgehogs are very fond of black beetles, and are often kept to destroy them in houses where these insects abound.

MARY.

But why does the gamekeeper kill hedgehogs? What mischief do they do?

ESTHER.

I believe they are considered destructive to game; eating the eggs, and destroying the young birds, when an opportunity offers: but here is mamma, with Frederick and Henrietta. What is that, Frederick, you have in your hand?

FREDERICK.

A few bean-pods, which I have brought to show you how some bird has been devouring all the beans in the garden.

MRS. F.

I suspect that a jay is the delinquent; for these birds are very destructive to beans, and will carry them off in great quantities. They, however, make ample amends to the farmer,

by the service they render him, in eating the grubs of the cockchafer.

FREDERICK.

I thought the rook had been the great friend to the farmer in destroying these grubs?

MRS. F.

So it is: for three months in the year they form the chief food of the rook and its young ones. Although the rook and jay are sad enemies to game, by destroying the eggs, and, even by their labours in the fields, sometimes do much mischief, yet there can be little doubt that the damage they thus commit is amply repaid by the benefit that results from their unceasing exertions in destroying that most insatiable insect, the cockchafer.

FREDERICK.

I believe that pigeons are more injurious to farmers and gardeners than any other birds: they devour such an immense quantity of grain, both at seed-time and harvest. Pigeons assemble in large flocks; and, if they attack a field of peas or tares, they do great damage. How very large the wood-pigeons are which the game-keeper sometimes shoots!

MRS. F.

The largest domestic pigeons I ever saw

were in the north of Italy, particularly at Padua, where, to give you an idea of their size, I must tell you, that we used frequently to have a dish of pigeon cutlets, in which each cutlet was made from the wing of a pigeon.

ESTHER.

But it was at Venice, I think, you have told me, mamma, that you saw the greatest quantity of pigeons?

MRS. F.

You allude to the pigeons of St. Mark, I suppose?

HENRIETTA.

What are they?

MRS. F.

The pigeons of Venice have something of historic interest attached to them. Every one who visits that city must be struck with the immense number of pigeons which inhabit the piazza of St. Mark. Their history is this:—In the early times of the republic, it was the custom, on Palm Sunday, to set at liberty, from above the great door of the church of St. Mark, a number of birds, principally pigeons, with pieces of thick paper attached to their claws. These incumbrances, by impeding their flight,

obliged them to descend in the piazza, where the people scrambled for them, and carried them off for their Easter dinner. This distribution was made three times during the ceremonies performed on Palm Sunday. Sometimes it would happen that the pigeons released themselves from their fetters, and, escaping from their pursuers, found refuge in the roof of the church, while others sought an asylum in the ducal palace, under those celebrated *piombi**, the state prisons of the Venetian republic. Here they rapidly increased; and the Venetians not only respected their retreat, but extended their favour to the whole tribe, and declared that pigeons should not be among the birds sacrificed to their sports on Palm Sunday; nay, more, — the pigeons of St. Mark were protected by the government, which decreed that little cells should be placed for them to build in, and that they should be fed at the expense of the state. An officer of the public granaries distributed their rations every morning in the piazza, and in front of the ducal palace; and they were thus regularly maintained by the state,

* - These chambers consist of the upper portion of the Doge's palace; and are so called because they are roofed with lead (*piombo*). They are light and airy; but Pellico, one of their most recent occupants, complains bitterly of their intense heat, and of his sufferings from mosquitos. (See his "Prigioni," c. 26.)

until the foreign invasion of 1796, when these pensioners were rendered dependent upon public charity.* They are now fed by an old Venetian lady; and, regularly as the church of St. Mark strikes two, they assemble in the piazza to receive their daily allowance.

HENRIETTA.

Thank you, aunt, for this curious account. How much I should like to see Venice!

MRS. F.

It is, indeed, a very interesting place, not only from its historical and poetical associations, but from its numerous works of art; many of which, like the city itself, are fast falling to decay. Venice has been, not inaptly, called "the Palmyra of the sea."†

ESTHER.

Did not the French carry away the famous bronze horses, the lion of St. Mark, and all the celebrated paintings?

MRS. F.

Yes; but they were restored at the peace. Count Cicognara related to me a curious ac-

* See "Festa delle Palme, in Signora Michiel's "Feste Veneriane"

† Valéry, vol. . p. 356.

count of a painting of Titian's which escaped their research.

HENRIETTA.

Will you have the kindness to tell us about it, aunt?

MRS. F.

The picture, which represents the Assumption of the Virgin, was the altar-piece of the church of the "Frari" in Venice, and was so black that the subject could scarcely be discerned. Knowing that there was a Titian in the church, the French went to see it; but finding the painting defaced, and the canvass of so large a size, (it is larger than Raphael's Transfiguration,) they did not think it worth removing. A few years since, Count Cicognara, the accomplished director of the Venetian academy, examined the painting more closely; and, beginning to surmise the cause of its dingy appearance, he ascended a ladder, and, with some spirits of wine, and a piece of cotton wool, tried, in one corner, to clean the picture. To his great delight, he found that the painting was uninjured; but that, from the position of the door of the church, the wind blew the resinous fumes of the incense used in the Roman Catholic ser-

* And author of several works upon painting and sculpture.

vice directly against the picture, and that it had thus become coated with a complete black resinous enamel, yielding to the application of the spirits of wine. The next point was to gain possession of the painting. He therefore went to the Frari, and offered to exchange it for a new altar-piece by a modern master. The proposal was accepted; and, once in the possession of this treasure, Count Cioognara resolved it should be publicly cleaned, in order that he might not afterwards be accused of any deception. It was accordingly moved to the academy, and there cleaned with the same application he had used in the first instance: all the black was removed; and this painting, although so large, is one of the most perfect of that master's, being injured in a single place only, where it is burnt, owing to one of the cridles of the altar having, probably, fallen against it. The painting is upon wood, and its colours are in remarkable preservation, which may be chiefly ascribed to the coat of resin that preserved it from being injured by the damp.

ESTHER.

Thank you for the anecdote. Titian died, I believe, at Venice.

MRS. F.

He did so: he fell a victim to the plague

which ravaged that city in 1575. His was the only body exempted, by order of the senate, from the general destruction; and he was interred in the church of the Frari, which we have just mentioned; there is an inscription on the pavement to mark the spot. In the same church is also a monument to the memory of Canova, who is not, however, interred there. His heart only is in this sepulchre: his body lies at Possagno, his native city, between Bassano and Venice, while his left hand is at Rome; and his right is preserved in the academy at Venice.

FREDERICK.

Aunt, what is this little spear-shaped buttercup?

MRS. F.

It is the lesser spearwort (*Ranunculus flammula*). In this country it is called horse-hunger, from the appetite which its acrid juices are supposed to give to the horses and cattle that eat it.

FREDERICK.

But is it wholesome for them?

MRS. F.

As we cannot subsist on mere flour alone,
 "so neither can cattle in general be supported

by mere grass, without the addition of various plants, in themselves too acid, bitter, salt, or narcotic, to be eaten unmixed. Spices, and a portion of animal food, supply us with the requisite stimulus or additional nutriment, as the ranunculus tribes, and many others, season the pasturage and fodder of cattle.*

HENRIETTA.

I should not have thought, they would eat any thing so bitter.

MRS. F.

On the contrary, I believe that the bitter, the narcotic, and even the poisonous, juices of plants do not prevent them from being eaten with impunity, and forming even a wholesome nourishment to some animals. Man eats the cascada (having first extracted its poison): how many insect tribes feed on all the species of the acrid euphorbia†; and the nettle, with its poisonous sting, is furnished with numerous parasites.‡ We have already seen§ that the terrific rapas is covered with insects: an Indian

* Sir J. Smith, English Flora.

† Euphorbia canariensis is eaten by the goats in the Canaries; and the peasant in Teneriffe, when pressed by thirst, removes the bark of the same plant, and drinks the watery sap.

‡ Fifty distinct species of insect feed upon the common nettle.

§ First Series, Chapter XIII.

bird * feeds to excess on the nux vomica; the land-crab (*Cancer ruricola*) on the berries of the manchineel tree; and the grosbeak (*Loria*) of the Bahamas on the fruit of the poison ash (*Amyris toxicifera*). The leaves of the pretty white greenhouse calla (*G. Æthiopica*), the most acrid of plants, are the favourite food of the caterpillar of a hawk-moth (*Sphinx lineata*); and a species of cockroach (*Blatta Americana*) devours the leaves of the Mexican poppy (*Argemone Mexicana*), equally acrid and more nauseous than the calla. The fiery berries of the capsicum are eaten by many tropical birds, and, in hot climates, are greedily devoured by the common poultry. "The leaves of *Kalmia latifolia* are feasted on by the deer and the round-horned elk, but are mortally poisonous to sheep, to horned cattle, to horses, and to man. The bee extracts honey, without injury, from its nectary, but the adventurer who partakes of that honey, after it is deposited in the hive-cells, falls a victim to his repast."† Thus is every thing formed for some useful end; and though it may be worthless and hurtful to the individual, as such, yet it contributes to the harmony and welfare of the whole.

* A hornbill (*Buceros*).

† Good's Book of Nature, vol. i. p. 102.

The book of creation is open, to us all; and legible to all, if studied in connexion with God's word. It is designed for the pleasure and instruction of all believers; and almost every object they see, when in a right frame of mind, either leads their thoughts to Jesus, or tends to illustrate some scriptural truth or promise. Though they may not be astronomers, yet, from a view of the heavens, the work of God's fingers, the moon and stars, which he hath created, they learn to conceive of his condescension, power, and faithfulness. Though they are unacquainted with the theory of light and colours, they can see in the rainbow a token of God's covenant and love. Perhaps, they have no idea of the magnitude or distance of the sun; but it reminds them of Jesus, the Son of Righteousness, the source of light and life to their souls." This, then, "is the best method of studying the book of nature; and, for this purpose, it is always open and plain to those who love the bible, so that he who runs may read."

CHAPTER XVII.

THE PLAGUE.

THE GALLEYS AT ROCHEFORT. — CONDITION OF THE GALLEY-SLAVES. — “MARSEILLES’ GOOD BISHOP.” — HOWARD — HIS INTERVIEW WITH JOSEPH II. — HIS DEATH. — BURKE’S EULOGIUM. — ST. ROCH AND HIS DOG. — ST. CHARLES BORROMEO — HIS COLLOSSAL STATUE — HIS SPLENDID MAUSOLEUM — HIS CHARACTER. — PLAGUE ORIGINATED IN EGYPT. — EMBALMING A MEASURE OF POLICY. — POSITION OF EGYPT. — GROTTA OF SAMOUN. — GEOGRAPHICAL DISTRIBUTION OF MUMMIES. — ABOYITION OF EMBALMING BY THE INJUNCTIONS OF ST. ANTHONY. — FIRST APPEARANCE OF THE PLAGUE. — CONVEYED BY COMMERCE. — PRESENT STATE OF THE DELTA OF THE NILE. — MODE OF INTERMENT OF THE MODERN COLONS.

“ As thunder quails
The inferior creatures of the air and earth,
So bowed the Plague at once all human souls;
And the brave man beside the natural coward
Walk’d trembling. On the restless multitude,
Thoughtlessly toiling through a busy life,
Nor hearing in the tumult of their souls
The ordinary language of decay,
A voice came down that made itself be heard,
As Death’s benumbing fingers suddenly
Swept off whole crowded streets into the grave,
Then rose a direful struggle with the Pest!”

WILSON’S *City of the Plague*.

THE following morning Mrs. Clifford paid a visit to Mrs. Fortescue; and, finding our little party engaged with their aunt, she begged to join in the conversation.

HENRIETTA.

We were talking about the galley-slaves, Mrs. Clifford, when you came, and were wondering if they are still in the wretched state they used to be in the time of St. Vincent de Paul.

MRS. C.

It was only yesterday that I met with an account of the galley^s at Rochefort.* The writer of the narrative describes his visit to this habitation of misery and crime. He states that he first went into a large enclosed quadrangle, where a few galley-slaves were reclining under an avenue of young trees: these wretched people belonged to the class termed "*forçats à chaussette*," consisting of those whose term of captivity is nearly expired, and who are not, like the rest, chained in pairs, but wear a ring round the leg.

ESTHER.

Are not the galley slaves confined in a vessel, like our English convicts, condemned to the hulks?

MRS. C.

Yes, all excepting the *forçats à chaussette*. The hulk consists of two apartment; in one, are placed convicts sentenced to the galleys for life; in the

* Les Bagnes. Rochefort, par M. Albouy.

other, those condemned for a shorter period. They are all chained in couples; and those sentenced to the heavier punishment are also chained to some spot in the room, while the others are allowed to move about the apartment.

A kind of muddy red is the colour in which these unhappy beings are dressed. Their caps, jackets, and waistcoats are all of the same colour: their hair is cut very close: the initials G A L. are marked both on the back and the front of their grey trowsers, and the word "*Galerien*" is stamped upon their shoes. Such is the general uniform of the galley-slave; but the convicts who are condemned for life, or for twenty years' labour at the galleys, are distinguished from the others by a green cap, and one brown sleeve to their jackets.

MRS. F.

I suppose their food is very wretched?

MRS. C.

Bread, and dried peas or beans, seasoned with a little butter and salt, form the daily mess of the galley-slave: when ill, however, he is allowed meat and fresh vegetables three times a week.

MRS. F.

This meagre diet can hardly be sufficient to support him?

MRS. C.

Probably not; but the galley-slaves call industry to their assistance, and exercise their ingenuity in working horse-hair, and straw, carving ornaments of wood, or of the shell of the cocoa-nut; and, by the sale of their work, obtain the means of purchasing any little indulgence of which they stand in need.

ESTHER.

In what labour are they usually employed?

MRS. C.

Principally in working in the port of Rochefort; but, I believe, the most laborious task assigned to them is that of towing vessels down the river.

FREDERICK.

Do they draw by a rope, as we see horses towing barges along the canals?

MRS. C.

In the same manner. The harbour of Rochefort is not sufficiently deep to admit of ships taking in their guns, and they are obliged to descend to the island of Aix to complete their cargoes. The winding course of the Charente renders the passage from Rochefort to Aix very difficult, and longer than can be always accom-

plished in one tide. When a ship, therefore, descends the river, from one to two hundred of the convicts, according to the size of the vessel, are employed in the laborious occupation of towing it down.

MRS. F.

What a wretched condition theirs must be ! They must, indeed, be fit objects for the charitable labours of a St. Vincent de Paul. But it was at Marseilles, not at Rochefort, that this good man so nobly exerted himself in their behalf.

MRS. C.

Marseilles was, also, the theatre of the actions of another Christian hero.

HENRIETTA.

You allude to " Marseilles' good bishop ?"

MRS. F.

Yes ; but who was he ?

HENRIETTA.

That, I cannot tell you, aunt ; for I read Pope's Essay on Man before you had pointed out to me the folly and idleness of my careless way of reading. Will you have the goodness to tell us who he was ?

MRS. F.

His name was Henri François de Belsunce; and, during the plague which ravaged Marseilles in 1720 and 1721, he eminently distinguished himself by his zeal and activity. Regardless of the risk of contagion, he went from street to street, carrying relief both to the minds and bodies of the sufferers; and, by his example and his exhortations, he caused the magistrates, the military, and all classes, to co-operate with him in the good work of charity.

———“Voulez-vous entendre
La loi de la religion ?
Dans Marseilles il fallait l'apprendre
A la suite de la contagion ;
Lorsque la tombe était ouverte ;
Lorsque la Provence, couverte
Par les semences du trépas,
Pleurant ses villes désolées,
Et ses campagnes dépeuplées,
Fit trembler tant d'autres états.
Belsunce, ce pasteur vénérable,
Sauvait son peuple périssant.”

ESTHER.

I hope that he did not take the plague himself

MRS. F.

No; although every day exposed to contagion, he never caught the malady. His life appeared to be shielded by a special providence; and he was enabled, throughout the whole du-

ration of the plague, to administer both spiritual and temporal consolation to his flock.

MRS. C.

—“ Though the noon-day pestilence
Slays her ten thousands ; yet, beneath the shade
Of Providence, the good man smiles secure
And undismayed.”

MRS. F.

The court twice offered M. de Belsunce higher appointments, in testimony of their sense of his humanity and generous self-devotion ; but no allurements could induce him to leave Marseilles ; and he continued bishop of that city until his death, in 1755.

MRS. C.

History abounds in examples of humanity and zeal in times of plague and pestilence. St. Roch and St. Charles Borromeo were heroes of Christian charity and courage.

ESTHER.

And then there is our own Howard.

FREDERICK.

Oh ! he was the person who was so humane to his old horses, and never allowed them to be shot ; but, when unfit for work, he turned them out into fields with comfortable warm sheds, and

fed them with hay and corn as long as they lived.

MRS. F.

" His kindness to his horses was an instance of the benevolent feeling which Howard extended towards every animated being: it is, however, for his exertions in ameliorating the condition of prisoners that Howard claims the gratitude of mankind. He,

" Touch'd with human woe, redressive search'd
Into the horrors of the gloomy gaol,
Unpitied and unheard, where misery moans;
Where sickness pines, where thirst and hunger burn;
And poor misfortune feels the lash of vice "

ESTHER.

How came he first to direct his attention to prisons?

MRS. F.

From having himself experienced the rigours of a dungeon: he was made prisoner by a French vessel, and placed in confinement. The misery he there endured probably first awakened his pity in behalf of his fellow-sufferers; and, on regaining his liberty, he devoted his whole life to the improvement of their condition, and visited the prisons, not only of England, but of every country in Europe.

— Thomson.

MRS. C.

As a poet expresses it, —

“ And now, Philanthropy, thy rays divine
Dart round the globe from Zembla to the line;
From realm to realm, with cross or crescent crown'd,
Where'er mankind and misery are found,
O'er burning sands, deep waves, or wilds of snow,
Thy Howard, journeying, seeks the house of woe.”

MRS. F.

The anecdote of his interview with the emperor Joseph II. is well known.

HENRIETTA

Will you have the kindness to tell it to us?

MRS. F.

It is related that, in an interview with the emperor, Howard alluded to the state of the hospitals at Vienna, when Joseph exclaimed, —

“ How, sir, do you complain of my dungeons, when, in England, they hang malefactors by the dozen ! ”

“ Sire,” replied Howard, “ I had rather be hanged in England than live in one of your dungeons ! ”

“ In truth,” observed the emperor, when Howard had left the room, “ this little Englishman is no flatterer.”

Howard died, at last, of a malignant fever, a victim to his benevolent exertions in the cause

of humanity. He was perfectly aware of his approaching end; but for him death had no terrors: it was an event he looked forward to with hope and cheerfulness. He desired to be buried at a spot near Dauphigny, a few miles from Cherson. "Let not any monument," he said; "no monumental inscription whatsoever, mark where I am laid; but place a sun-dial over my grave, and let me be forgotten." The whole account of his death, and the observations upon Prince Potemkin, (who also died at Cherson,) are so beautiful in Dr. Clarke's Travels* that we will read the passage this

MRS. C.

And, if Esther will give me the third volume of Burke's speeches, we will finish the subject by reading his eulogium of Howard.†

* Vol. ii. chap. 8.

† "I cannot name this gentleman, without remarking that his labours and writings have done much to open the eyes and hearts of mankind. He has visited all Europe — not to survey the sumptuousness of palaces, or the stateliness of temples; not to make accurate measurements of the remains of ancient grandeur, nor to form a scale of the curiosity of modern art; not to collect medals, or to collate manuscripts; — but to dive into the depths of dungeons; to plunge into the infections of hospitals; to survey the mansions of sorrow and pain; to take the gauge and dimensions of misery, depression, and contempt; to remember the forgotten, to attend to the neglected, to visit the forsaken, and to compare and collate the distresses of all men in all countries. His plan is original; and it is as full of

HENRIETTA.

Howard must have been quite the English St. Vincent de Paul.

MRS. F.

Both pursued the same career of usefulness; both shared their time and fortunes with the children of affliction; and both were, in the words of the patriarch*, eyes to the blind, feet to the lame, and fathers to the poor.

ESTHER.

You mentioned, Mrs. Clifford, St. Roch and St. Charles Borromeo, as instances of philanthropy: will you have the kindness to tell us who St. Roch was?

MRS. C.

St. Roch was born in 1295; and died, after a short but useful life, in 1327. He was a native of Montpellier; but Italy was the principal scene of his noble labours. Cesena, Ri-

genius as it is of humanity. It was a voyage of discovery, a circumnavigation of charity. Already the benefit of his labour is felt more or less in every country. I hope he will anticipate his final reward by seeing all its effects fully realised in his own. He will receive, not by detail, but in gross, the reward of those who visit the prisoner and he has so forestalled and monopolised this branch of charity, that there will be, I trust, little room to merit by such acts of benevolence hereafter." — Speech at Bristol, previous to the election, 1780.

* Job, chap. xxix. verse 15.

mini, Rome, and Placentia, all felt the influence of his generous exertions during a plague which ravaged the whole country; and, in the last place, St. Roch nearly fell a victim to it himself. Attacked by this dreadful malady, St. Roch left the hospital, that he might not be a burden to others, and retired to a solitary spot, where he would probably have perished, had he not been accidentally discovered by the dog of a nobleman, who lived near the place of his concealment, and who caused him to be removed, and carefully nursed, until his recovery. This incident is a favourite subject, which we often see portrayed in the works of the old masters.

MRS. F.

It has, also, given rise to the French proverb of "*Qui aime St. Roch aime son chien*," which is equivalent to our common saying of "Love me; love my dog."

HENRIETTA.

And who was St. Charles Borromeo?

MRS. C.

He was archbishop of Milan during the plague of 1576*, when he consecrated his time

* He was born in 1538, and died 1584.

and his fortune to the relief of the sufferers. His charity was inexhaustible, and his zeal in attending upon the sick, and in making processions of humiliation, rendered him deaf to the entreaties of his friends that he would consult his own safety; but he maintained that a bishop would not be faithful to his engagements if he were to desert his flock in times of danger. His self-devotion has been rewarded by the testimony of the whole of his diocese, in which St. Charles is quite the tutelary saint; and the colossal statue of him at Arona, and his splendid mausoleum in the cathedral at Milan, attest the gratitude of his flock.

MRS. F.

His tomb is most splendid, and is one of the chief objects of interest in the cathedral at Milan. It is a subterranean vault, which St. Charles had himself selected as the place for his interment, little anticipating the costly sepulchre which the grateful Milanese have raised in his honour. The body of St. Charles is enclosed in a crystal sarcophagus, through which

* His birthplace. This statue is 72 French feet in height, or 108 feet, including the pedestal. The head is 20 feet in circumference; and wall, of course, contain several persons. This statue is of bronze, and weighs 1,100,000 lbs. (Milanese weight). It was erected by order of his cousin, and worthy successor, Charles Frederick Borromeo, so well known by Manzoni's tale of the "Promessi Sposi."

his features may be discerned. He is arrayed in his episcopal robes, enriched with diamonds, gold, and silver. The chapel is lined with crimson silk, and ornamented with bas-reliefs of silver, representing the actions of St. Charles. The metal employed in these pieces, and in the high altar (which is also of massive silver), cost 160,000*l.*; the workmanship was a gratuitous tribute of gratitude from the silver-smiths of Milan to the memory of this illustrious saint. All this pomp and pride of wealth form a strange contrast to the family motto, "humilitas," placed upon the tomb; and also to the humble character of him in whose honour it is erected.

MRS. C.

The humility, self-command, temperance, industry, and fortitude of St. Charles were not inferior to his public endowments.* His table was for his guests: his own diet was confined to bread and vegetables. "His dress and establishment were such as became his rank; but in private he dispensed with the attendance of servants, and wore an under-dress, coarse and common: his bed was of straw; his repose short; and, in all the details of life, he manifested

* He was the great restorer of ecclesiastical discipline in the Italian church.

an utter contempt of personal ease and indulgence." * Gifted with a princely birth and fortune, with learning, talents, accomplishments, and high dignity, St. Charles devoted himself entirely to his Master's cause. He divided the revenues of his see into three parts: one portion he gave to the poor, another he appropriated to the repair of churches, and the third he set apart for his domestic expenditure. It is not wonderful, then, that such virtues should have so endeared him to his flock that after death he should have become the object of their grateful veneration. If ever human being deserved honour from his fellow-creatures, it was St. Charles Borromeo.

MRS. F.

Thomson forcibly describes the horrors of the plague.

ESTHER.

In his "Summer," I think; but I do not perfectly recollect the passage.† I have heard that, in the museum of Florence, there is a series of wax figures, representing the plague, in all its different stages, with such horrible fidelity that few persons venture to look at them.

* Eustace, vol. iv. See also Biographie Universelle.

† "What need I mention those inclement skies," &c.

MRS. F.

" So I have understood; but, of course, I can only speak from report of any thing so horrible.

MRS. C.

" The 'plague' must, indeed, be a dreadful malady: is it not from Egypt that it is supposed to have been first brought into Europe?

MRS. F.

Yes: the plague is traced to the Delta of the Nile, where the heat and humidity of the ground are peculiarly calculated to produce the spontaneously.

MRS. C.

But we do not hear of the plague in the history of ancient Egypt?

MRS. F.

No. the plague dates from the time of the emperor Justinian; and is attributed to the disuse of the custom of embalmment, and to the want of attention now paid to the removal of dead bodies, which corrupt the air, and cause this dreadful scourge.

MRS. C.

Then, the practice of embalming the dead was, with the ancient Egyptians, as much, a measure of precaution as of religion?

MRS. F.

Yes: this enlightened people, who, you recollect, were the physicians of the ancients, finding the necessity of the strictest attention to the preservation of the public health, rendered obligatory, as a matter of religion, that which it would have been impossible, by any other means, to enforce; and therefore sanctified a practice of public necessity. The priests were the lawgivers and the magistrates of ancient Egypt: to them she was indebted for her civil and political organisation: they had the key of all the sciences; and might, with justice, be styled "the soul of Egypt." Laws, arts, science, commerce, all emanated from them; and they soon saw the expediency of embalming the dead, in order to preserve the health of the living.

ESTHER.

But why, in Egypt particularly, were such precautions necessary?

MRS. F.

If you consult the map, you will see the peculiar physical position of Egypt.* Its bound-

* The following remarks are taken from a "Mémoire sur la Peste," by M. Pariet, who was at the head of a commission, sent into Egypt by the French government, to inquire into the origin of this malady.

ary is confined by the desert, to the valley of the Nile, which is long and narrow, and enclosed, on each side, by chains of high rocks, covered with vast forests. In the time of Menes, all Lower Egypt, from the Thebaid to the sea, was one long marsh. The soil of the valley, being principally formed from the deposits of the Nile, was not sufficiently elevated for the water to return entirely into the bed of the river, after its periodical inundations. Now, let us picture to ourselves this vast body of water, — the river, marshes, thick vapours, a flat country, and the power of a tropical sun in a narrow valley, almost like a hot-bed, and covered with a vigorous vegetation, — let us bring all these points together in our minds, and we shall easily see what a receptacle Egypt would be for pestilential emanations.

MRS. C.

And then we must, also, take into consideration the numbers of animals of every description* with which Egypt swarms, and which would increase the corruption of the air.

MRS. F.

Such, then, was the state of Egypt when its

* Such as hyenas, jackals, rats, serpents, crocodiles, fish, &c. besides vultures, eagles, and other predaceous birds.

ancient population descended the Nile; for we must recollect that civilisation descended the river from Ethiopia, the land below the first cataracts being a newer ground, formed by the deposits of the Nile. As the people increased they were obliged to migrate northwards; and their first business would be to render the land healthy and habitable. Accordingly, we find that they cut down the forests, drained the marshes, deepened the bed of the river, and confined it within those dykes which constituted the wonder of antiquity, and of which only a few vestiges remain, at Thebes and near the Labyrinth. But still, so long as the ground was swarming with animals, it was useless to attempt to purify the air.

MRS. C.

But most of these animals were the objects of their worship?

MRS. R.

How to dispose of them was precisely the difficulty. Fire was looked upon by the Egyptians as a voracious animal; and to burn them would have been the greatest sacrilege. To crush them in the mud, and leave them to decay, would only have increased the evil: the Egyptian priests, therefore, effected their object

by embalming them, pêle-mêle, in large caverns, which they selected for the purpose. These caverns have been discovered by modern travellers, who find them in the rocks on both sides of the river, and they are filled with animals thus embalmed by myriads.

MRS. C.

I never heard of these caverns.

MRS. F.

M. Pariset particularly mentions the grotto of Samoun*, which he visited. It consists of a series of chambers, separated from each other by partitions of stalactites. In these apartments he found myriads of crocodiles, packed in layers, from the floor to the roof; consisting, not only of the full-grown animal, but of young crocodiles of every dimension, and millions of their eggs, all enveloped in rolls of linen, which had been dipped in some resinous matter.

MRS. C.

How singular that such a quantity of linen should have been used!

MRS. F.

Unfortunately, these substances have taken fire, either from design or accident, and a great

* On the Arabian chain, near Moufalout.

portion is burnt. Skeletons of sharks are also found in this grotto, although it is above 10 leagues from the sea. Other caverns contain monkeys, serpents, fishes, dogs, jackals, wolves, frogs, the ibis, with jars full of its eggs, all in such vast quantities, that these animals evidently cannot have been so deposited after a natural death, but must have been hunted and destroyed, in order to relieve the country from so dense a population.

MRS. C.

Are the animals heaped indiscriminately in all the grottos, as they are at Samoun?

MRS. F.

They are buried in the same manner in many other caverns, from which it appears, that they were sometimes interred upon the spot where they perished; but the distribution of the mummies is generally geographical; and, if Esther will refer to the map, she can show her cousins the places as I mention them.

In every part of Egypt, from Syene to Alexandria, human mummies are found. From Syene to Thebes they consist principally of fishes. At Thebes we find apes, crocodiles, serpents, and domestic animals. Lower down the river, near Syout, dogs, jackals, wolves, crocodiles, with their eggs, lizards, frogs, and

swallows. Descending the river still further, vast chambers are to be seen, in which apes are placed in tombs of stone, and the ibis is embalmed, with large earthen pots, closed with plaster, and filled with myriads of its eggs. At Beni Hassan, Champollion found millions of yards of ground covered with mummy cats, some simply embalmed, others preserved with magnificence. At Achni there is a mountain of birds; and, when we descend to the plains of the great pyramid, the ground is one vast mummy-bed, of nearly fifty square leagues; a receptacle for animals of every size and description, from the cricket to human beings. Whether this distribution was established by law, or whether it marks the species exterminated by the new settlers, as the animals gradually receded from their steps, is a point difficult to determine.

* But I must return to the subject immediately under our consideration; for, in showing you the necessity of embalming, in a hot humid climate like Egypt, we have digressed widely from the plague, which, it appears, was not known in Egypt, so long as embalming continued to be practised; and, indeed, Egypt was considered by the ancients as one of the most healthy countries of the known world.

MRS. C.

When was embalming first disused ?

MRS. F.

St. Anthony, on his death-bed, proscribed the custom as sacrilegious: it was, in consequence, abolished, and the Copts ran into the opposite extreme. Persons were interred, not only in churches, cities, and monasteries, but even in private houses; a custom which prevails among the Copts to this day. The consequence of such a practice was the immediate appearance of the plague.

MRS. C.

When did it first appear ?

MRS. F.

In the year A. D. 542, and its first ravages were terrific. It began in the city of Pelusium, whence it spread over Egypt into Palestine, and into every country from Persia to the Atlantic, devastating the earth for a period of fifty-two years.

MRS. C.

I suppose that commerce contributed to spread the disorder ?

MRS. F.

Yes ; for, independently of being the channel through which the productions of Asia were

transmitted to Europe, the manufactures of Egypt itself were still prized, and her commodities were such as were most calculated for conveying infection. She exported flax and cotton in a raw state; and the dyes of Alexandria; the tissues of Tennis; the veils, the embroidered carpets, and the golden stuffs of Bahnesa; the dresses of Arsinöe, and the fine stuffs of Achmin and of Panopolis, were still remains of the ancient industry of Egypt.*

MRS. C.

Then the plague in Egypt is attributable to the absence of sanitary precautions?

MRS. F.

So it appears. The country is not changed, but the wisdom of the ancients no longer exists. The waters are not drained: the wretched, half-clothed, inhabitants often subsist upon only a few thistle-leaves, or bread made of the seed of the cotton or the flax, from which the oil has been expressed. The villages are thickly populated; the streets narrow; the people crowded together with sheep, goats, camels, buffalos, &c.;

* Not should we omit the paper of Dehelia, of which France, at that time, consumed immense quantities; and charters of the early French kings still exist, in the public libraries, written upon Egyptian paper, of which the manufacture is so ancient that, in the time of Pliny, letters were extant written by Sarpedon, at the siege of Troy, upon paper from the same

dogs and vultures are the only scavengers; and the waters of the Nile, which the people drink, are infected by the dead animals left to float upon its surface. Their sepulchres consist merely of pits superficially dug, or of long brick edifices, in the form of ovens, above ground, in which the bodies are ranged; and, over the original structure, several stories are successively raised, until the building assumes the form of a pyramid, often exceeding in height the tops of the adjacent houses. Each story is open at one end, and a little mud frequently forms the only mortar; so that these weak edifices, which are often carried away by the inundations of the river, offer little or no security against the corruption of the air.

But all this even is nothing compared with the practice, pursued by the Copts, of burying their dead under the floors of the houses, or in a little court beside them, in which caves are constructed (frequently as many as eight), each formed for the reception of, from eighty to ninety bodies. Sometimes they are placed under the staircase, sometimes, even, under the floor of the very room which is occupied by the family. When we take all these circumstances, therefore, into consideration, it is not surprising that Cairo, and the towns of the Delta, are never free from the plague.

MRS. C.

"Then, if stricter measures were taken for the purifying of the air, it might be hoped that Egypt, and, consequently, Europe, would be freed from this dreadful malady?"

MRS. F.

So it may fairly be inferred. The climate of the Delta is hot, the ground damp, flat, and filled, with animal remains. On the climate man can have no influence; but, by restoring to Egypt the wisdom of her ancient inhabitants, by giving her strict sanitary laws, the great causes of infection would be removed, and the country restored to its former salubrity.

CHAPTER XVIII.

THE PALM TREE.

THE TALIPOT TREE. — PALMYRA, OR FAN PALM. — CLIMBING PERCH. — MIGRATORY FISH. — THE TREE LOBSTER AND THE COCOA-NUT. — FRESHNESS OF THE COCOA-NUT MILK. — TEMPERATURE OF TREES. — SAGO. — CYCAS AND ZAMIA. — PALM GROVES. — THE DATE PALM. — TRADE IN PALM LEAVES. — PALM OF JUDÆA — OF MOUNT SINAI. — SPRINGS IN THE VICINITY OF THE PALM AND THE SPRUCE FIR. — THE ARECA PALM AND THE BETEL. — HEIGHT OF THE PALM AND OF SOME OTHER TREES. — LOFTY TREES THE RESORT OF THE GOLDEN-CRESTED WREN, AND OF THE HUMMING-BIRD. — ANECDOTES OF A BIRD OF PARADISE. — OF MONKEYS. — OF A MONKEY WHICH REARED SOME PUPPIES. — OF A CAT WHICH BROUGHT UP A CHICKEN, — OF THE FOSTER-MOTHER OF THE YOUNG CUCKOO.

“Is it where the feathery palm-trees rise,
And the date grows ripe under sunny skies,
Or ’midst the green islands of glittering seas,
Where fragrant forests perfume the breeze;
And strange bright birds, on their starry wings,
Bear the rich hue of all glorious things?
• “Not there, not there, my child.”

The Better Land, MRS. HEMANS.

HENRIETTA.

WHAT is that very large leaf which I see in the hall, aunt?

MRS. F.

It is a leaf of the talipot tree (*Corypha um-*

braculifera), which was given to me the other day.

HENRIETTA.

I recollect your alluding to this tree when you were giving us an account, last holidays, of the various materials used for writing.*

MRS. F.

These leaves, when they attain their greatest dimensions, are upwards of eighteen feet in diameter; and, as they readily receive an impression from a hard point, advantage is taken of this property to use them instead of paper, and strips, prepared in milk, are applied to this purpose. All the books of importance in Ceylon, relative to the religion of Buddhism, are written upon laminæ of these leaves; the Cingalese character being engraved upon them with a style, either of brass or iron. Many specimens of this mode of writing exist in oriental collections in this country, among which are some supposed to be between 500 and 600 years old, which are still very perfect. The Birmanians also write upon the talipot leaf, and the Birman king presented to the governor of Ceylon the finest specimen he could obtain of the manner in which the books in

the royal library of Ava are written. It is a volume on the Buddhoo religion, written upon laminæ of the talipot, lacquered over, and beautifully gilt.

ESTHER.

Where does the tree chiefly grow?

MRS. F.

In the interior of Ceylon, in the Birman empire, and in other parts of India. It sometimes attains the height of 200 feet: it blossoms but once during its existence, which is generally when about eighty years old. The flower-spike (which is sometimes thirty feet long) then bursts its envelope with a loud explosion. In the course of about fifteen or twenty months from the time of the flower's expansion, it showers down an abundance of nuts, and then dies, having left another race to succeed it.

ESTHER.

Are the leaves applied to no other purpose than as a material for writing?

MRS. F.

To many, their extraordinary size renders them very useful. A single leaf will afford shelter to fifteen or twenty persons, and the common people use them for tents. When cut

at the extremity of the petioles, (or leaf-stalks), they are said to be employed to protect the heads of those who have to force their way through the jungles. For this purpose a portion only of the leaf is used; the thicker part, which was attached to the petiole, is placed forward, and, the sides hanging over the ears, a kind of wedge or inverted keel is formed, which forces the branches aside as the wearer pushes forward.*

ESTHER.

Mrs. Clifford tells me that the palmyra (*Borassus flabelliformis*) is used in India, by the natives, instead of paper. The leaf is separated longitudinally, according to its natural segments; and the characters are traced with an iron style, by a series of punctures through the cuticle of the leaf, and the writing is rendered legible by smearing it over with a composition of lamp-black and cocoa-nut oil. The leaves of the palmyra are also used as fans (or hand-punkahs, as they are termed in India;) for this purpose the extremities of the leaf are pared close, and confined with wire; and these fans are generally painted of a variety of gaudy colours. †

* Sir Alexander Johnstone.

† Hooker's Botanical Miscellany, vol. iii. p. 37.

MRS. F.

• The palmyra, or fan palm, is also rendered remarkable from it being the tree which is ascended by a fish (*Perca scandens*) of the perch kind.

HENRIETTA.

I never heard before of a climbing fish.

MRS. F.

This fish was found by a traveller in Tranquebar; and it not only creeps upon the shore, but, as I was telling you, ascends trees, in search of the crustaceous animals which form its food.

HENRIETTA.

But how can it climb?

MRS. F.

For an account of the admirable structure by which it is enabled to perform these extraordinary movements, I refer you to Mr. Kirby's Bridgewater Treatise, where the whole operation of ascending the tree is fully described. But this is not a solitary instance of a migratory fish. The flat-headed hassar (*Doras* genus) roams about in the most extraordinary manner. When the pools in which they commonly reside are dry, these fish (which are about a foot long) move by land, in search of others in which the

water is not yet evaporated. They travel in droves by night. A strong serrated arm, which constitutes the first ray of its pectoral fin, is used as a kind of foot; and the fish pushes itself forwards, by means of its elastic tail, nearly as fast as a person would leisurely walk. The stony plates which envelope its body probably facilitate its progress, in the same manner as those under the body of serpents, which, in some degree, perform the office of feet.*

ESTHER.

Bosc, the French naturalist, also found a migratory fish in the fresh waters of Carolina.

MRS. F.

And then there is the tree lobster, or crab, which ascends the cocoa-nut and other palms, and devours their fruit.

HENRIETTA.

What a curious sight it must be to see these animals climbing the cocoa-nut trees!

MRS. F.

In a missionary voyage to the South Seas†, which I have been lately reading, mention is made of crabs‡ which live under the cocoa-

Dr. Hancock.

† Bennett and Tyerman, vol. ii. p. 33.

‡ Cancer latro.

nut trees, and subsist upon the fruit that falls from them. By means of its front claw the animal tears off the husk; and then, inserting the same instrument into one of the eyes or holes at the end of the nut, it beats it with violence against a stone, until it is cracked; the shell is then easily pulled to pieces, and the fruit is devoured at leisure. Sometimes, by widening the hole with their round gimlet claws, these animals effect a sufficient entrance to enable them to scoop out the kernel without breaking the nut. These crabs burrow in the earth, under the roots of the trees that furnish them with provision; prudently storing up in their holes large quantities of cocoa-nuts, stripped of the husks, at the times when the fruit is most abundant, against the recurring intervals when it is scarce.

ESTHER.

What is the cause of the milk of the cocoa-nut being so delightfully cold? Travellers always speak of it as so grateful and refreshing in a tropical climate.

MRS. F.

The singular and refreshing coolness of the cocoa-nut milk depends upon the fact, which has been clearly established by botanists, that

TEMPERATURE

the temperature of a tree is the same as that of the soil in which its roots are planted, viz., warmer than the atmospheric air in winter, and colder in summer. The sap which is absorbed by the roots of a tree rises vertically in the trunk; and the fruit of the cocoa, being nourished by sap pumped up by its pivot roots, at a considerable depth; and the thick pericarp* of the fruit (or cocoa-nut shell, as we call it,) excluding the influence of atmospheric air, the cocoa-nut milk retains the low temperature of the soil whence its roots absorb the nourishment. †

ESTHER.

Thank you, mamma.

MRS. F.

Buffon was the first to observe that, if a tree were cut in winter, the interior of the trunk would be found warm; and subsequent observations have established the fact, that from autumn to spring the temperature of trees is higher than the surrounding air, and that from spring to autumn it is lower.

* Every fruit consists of two parts, the pericarp and the seed: every thing, therefore, in a fruit which is outside the seed belongs to the pericarp.

† De Candolle, *Physiologie Végétale*.

ESTHER.

Then the more superficial the roots of a tree the less the difference of temperature; and plants, therefore, with shallow roots feel the cold and heat more than those with deep ones.

MRS. F.

Living trees, also, are warmer than dead, as was first observed by Saussure, who remarked that the snow melted more rapidly at the foot of some living trees than it did by some dead ones. This is an important fact, and one which is of great use in practical gardening. But to return to the subject of palms.—I have already described to you several interesting species. The Seychelles' palm, and the cocoa-nut, we conversed about some time back*: the wax palm of the Andes I have also mentioned†; and you, doubtless, are well acquainted with the history of the *Mauritia* palm, upon which the tribes of the Orinoco lead a parasitic existence.‡

HENRIETTA.

You have not told us about the sago palm, aunt.

* First Series, Chapter IV.

† Chapter IX.

‡ Bertha's Journal, and De Humboldt's Voyage.

MRS. F.

No; because, as my object is not to save you the trouble of searching for yourselves, I generally avoid giving you that information which is easily accessible, if you will take the time to look for it; and an account of the farinaceous substance, called sago, is readily to be procured in any encyclopædia. But the production of sago is not confined to one genus of palm (*Sagus*), almost all the palmæ furnish it in greater or less quantities.* It is also found in *Cycas revoluta*; and the Hottentots procure it from *Zamia cycadifolia*. The stem of this plant, when stripped of its leaves, resembles a large tree-apple. It is called the Hottentot bread-fruit. The people bury it for some months in the ground, then pound it, and extract a quantity of farinaceous matter, of the nature of sago.†

ESTHER.

How elegant the palms must be, growing in their native country! Thomson alludes to their beauty, when he says

"Broad o'er my head the verdant cedars move,
And high palmetto lift their graceful side."

* De Candolle, *Propriétés Médicales des Plantes*.

† Hooker's *Botanical Miscellany*, vol. ii. p. 265.

MRS. F.

Yes; and Captain Carmichael, speaking of the effect of a fine grove of the *Sagus Rumphii*, which exists in the botanic garden of Calcutta, observes, "It has been supposed by many persons, that the first idea of the Gothic column and arch was suggested by the stems and fronds of the palm. If any thing could confirm in that opinion such as ~~ever~~ertain it, it would be the appearance of this grove, than which nothing can approach nearer to the finest specimens of that style of architecture. The trees are arranged in regular avenues, crossing each other at right angles; and the height of the stems is so equal, and the arching of the fronds so true, that I could hardly persuade myself that such perfect symmetry could be attained without the assistance of art. The foliage is so thick overhead that not a ray of light can penetrate from above; and so completely is vegetation destroyed in the shade that, while walking through it, I fancied myself treading the cold paved floor of a Gothic cathedral."

HENRIETTA.

Pray, aunt, what kind of palm is it which the Italian painters so often place in the hands of the saints and martyrs?

* As quoted in Hooker's Bot. Mis. vol. iii. p. 35.

MRS. F.

The date palm (*Phœnix dactylifera*) is, I believe, the species which they mean to represent : this is still used by the Roman Catholics on Palm Sunday, and by the Jews in their celebration of the feast of the Passover. The exportation of the leaves of this palm affords an object of commerce at Nice, Genoa, and its vicinity, where the tree grows, for the use of the Jews for Palm Sunday, and for the Passover. Several vessels quit Bordighiera, in the territory of Genoa, with this singular cargo ; some carry it to Holland, whence it is transmitted to Poland for the Jews, who purchase these leaves in great quantities.

ESTHER.

This palm is, probably, the same that has been always used by the Jewish nation, for it abounds in Judæa.

MRS. F.

Yes ; so characteristic a feature is the palm in that country, that it was latterly made the symbol of Judæa. In the medal struck by Vespasian, on his conquest, Judæa is represented as a female captive, sitting under a palm tree ; and the same effigy is introduced in a coin of Titus,

struck upon a similar occasion. Pope alludes to this circumstance when he says

“Beneath her palm tree sad Judæa weeps”*

The palm affords a constant simile in scripture. Jericho was called “the city of palms;” and Deborah dwelt and gave judgment under a palm tree.† In Laborde’s beautiful work on Arabia Petræa there is an engraving of a curious wild palm tree, growing near Mount Sinai. Speaking of this interesting tree, he states, that the elegant graceful form in which we are accustomed to see it, is produced, in a great measure, by art. At times it forms impenetrable forests; but it is more frequently found isolated, near a fountain; thus serving to the thirsty traveller as a friendly beacon, pointing out the spot where water may be found.

MRS. F.

I have understood that, in America, the spruce fir is a similar indication to the natives of the existence of springs in its vicinity; this tree delighting in cool damp situations. Water is always to be found wherever a clump of them is growing.”

Epistle v.

† Judges, chapter ix. v. 5.

ESTHER.

Mamma, before we finish the subject of palms, will you have the kindness to give us some account of the areca palm (*Areca catechu*), so much used in India and China with the leaf of the betel.

FREDERICK.

Do you allude to the custom usually called "chewing the betel?"

MRS. I.

Yes: the nut of the areca palm, and the leaf of the betel vine, mixed with quicklime, constitute the ingredients requisite for this ceremony. The areca palm grows in Malacca, in the Eastern Islands, and in Cochin China: the nuts which are imported from the last-mentioned country are those most esteemed by the Chinese. The areca palm grows from 40 to 50 feet high, and is three years before it produces fruit. The quantity of nuts exported to China is enormous. The betel vine (*Piper Betel*) is of general cultivation throughout India.

HENRIETTA?

Is the habit of chewing betel common?

MRS. F.

It is prevalent among all the Eastern nations, but most especially among the Malays, with whom

the practice is commenced even in childhood. In Sumatra every one carries the ingredients about with him: the prince in a gold, the rich in a silver, stand; the poor in a brass box, or a mat bag. This stand contains several smaller divisions, for holding the several ingredients, which consist of the areca-nut, called *Pinang*, the betel-leaf, termed *Sirih*, and the *Chunam*, a kind of quicklime, prepared from calcined shells. In addition to these articles, the stands also contain divisions for holding the instruments employed in cutting the nut, and spatulas for spreading the chunam.

HENRIETTA.

When is the betel presented to guests?

MRS. F.

After the first salutation is over, the betel is offered as a token of hospitality and politeness. To omit it, on the one hand, or to reject it, on the other, would be deemed an affront.

HENRIETTA.

And how is it mixed?

MRS. F.

A small quantity of the chunam is placed upon a betel-leaf, and folded up with a slice of the areca-nut. The mastication of these plants

is considered to be very wholesome by those who are addicted to the practice; but the black appearance which it gives to the teeth (although it is said to preserve them), and the brick-red lips and mouth, produce any thing but an agreeable appearance. * -

ESTHER.

Is not the wax palm (*Cerorylon Andicola*) the most lofty of all the palm trees?

MRS. F.

Yes; and it attains, I believe, the highest elevation of any endogenous† tree; De Humboldt and Bonpland having measured specimens as high as 180 feet; but the cabbage palm (*Areca oleracea*) is nearly as tall. The cocoa attains from 60 to 80 feet; the date from 50 to 75 feet. But when I say the wax palm is the highest of the endogenous plants, I do not mean to include the running stalks, such as the bamboo, for they are, of course, capable of a still greater extension; the bamboo being sometimes 500 feet long. |

* Bennett's Wanderings in New South Wales, and Hooker, in Botanical Magazine.

† In *Exogenous* plants (from the Greek, I grow out,) the stem is formed by successive additions to the outside of the wood, as the oak, fir, &c. In *Endogenous* (from the Greek, I grow in,) it is increased by successive additions to its centre, as in the palm, plantain, &c.

ESTHER.

How are these elevations as compared with exogenous trees?

MRS. F.

The *araucarias* are, I believe, the highest trees known. The pine of Chili (*Araucaria imbricata*) attains an elevation of 260 feet; and the Norfolk Island pine (*Araucaria excelsa*), has been measured as high as 228 feet. *Pinus Douglasii* has been found 230 feet high, and 50 feet in circumference*; and *Pinus Lambertiana* 215 feet in height, and 57 feet in circumference. The teak tree rises to 200 feet; the tulip tree (*Liriodendron tulipifera*), the larch, the *Eucalypti*, and the cedar of Lebanon, to 150 feet; the oak from 80 to 100; the lime to 90; and *Magnolia grandiflora* sometimes reaches 95 feet, though its ordinary stature is from 60 to 70 feet.

- FREDERICK.

It is curious that the little golden-crested wren should generally choose the tallest trees to perch upon. This pretty creature is always seen hopping upon the cedar of Lebanon, or some other tall tree, such as the fir or the oak; and sometimes, when I have heard its little weak cry,

* *Pinus Douglasii* grows in large forests, and specimens of its bark have been cut twelve inches in thickness.

I have been surprised at the height of its resting-

ESTHER.

" The cabbage palm, and other lofty trees, are the favourite resort of the humming-bird*, which is even less than the golden-crested wren.

FREDERICK.

What is the difference in their size and weight?

ESTHER.

The golden-crested wren is nearly three inches and a half long, and weighs seventy-six grains.† The smallest species of humming-bird weighs only twenty grains, and measures only an inch and a quarter in length: the female is still smaller.‡

MRS. F.

The bird of paradise is also a frequenter of tall trees. I was reading, the other day, an interesting account of this bird§, which I will relate to you, as we have yet a short time before we go to our studies.

* Bullock's Mexico.

† Bewick's British Birds.

‡ Bonovan.

§ See Bennett's Wanderings.

ESTHER.

• We shall all be very glad to hear it; for the history of the bird of paradise is so mixed with fable that it is difficult to arrive at exact truth respecting it.

MRS. F.

Indeed, so anxious have the natives been to keep us in the dark, that it is only within these last seventy or eighty years that they have offered these birds for sale with their legs on.

The bird of paradise (*Paradisea apoda*) is a native of New Guinea, and the neighbouring islands, where it is called by the inhabitants "bird of the sun." During the dry monsoon these birds go to the Aroo Islands, and return to New Guinea as soon as the easterly or wet monsoon sets in.

ESTHER.

Are they gregarious?

MRS. F.

They always fly in flocks of from thirty to forty; and are led by an individual which the inhabitants of Aroo call the king, but which is totally distinct from the species usually denominated the little king bird of paradise. This leader is black, with red spots; he constantly flies higher than the rest of the flock, which

never forsake him, but settle as soon as he settles; a circumstance that occasions their ruin when the king alights on the ground, from which they are unable to rise, on account of the singular structure and disposition of their plumage.

ESTHER.

I suppose this inability to raise themselves from the ground is occasioned by their airy plumage being caught by the wind in their attempts to rise?

MRS. F.

Yes: they are unable to fly with the wind as it would quite destroy their loose and beautiful plumage: they constantly take their flight against it; and are cautious not to venture out in hard-blowing weather, inasmuch as a strong gale frequently causes them to fall to the ground. In Aroo they often settle upon the tree, where they receive shelter from its foliage, and feed upon its small fruit.

FREDERICK.

How are the birds of paradise caught?

MRS. F.

The natives have various ways of taking them: they either catch them with bird-lime or in a

noose; or they shoot them with blunt arrows. As soon as a bird is killed they cut off its legs, and dry and fumigate it with sulphur, or smoke only. Mr. Bennett gives an interesting account of a bird of paradise which he saw at Macao, in an aviary where it had been confined for nine years.

HENRIETTA.

We should like to hear his description.

MRS. F.

Mr. Bennett states that this elegant creature has a light, playful, and graceful manner: he dances about his cage when a visitor approaches, and seems delighted at being made an object of admiration. His notes are very peculiar, resembling those of a raven; but his tones are much more varied than those of that bird. The bird of paradise is not ravenous, but eats with moderation; its food consisting of boiled rice, with egg, plantains, and living insects of the grasshopper tribe: these it contrives to catch in its beak, with the greatest celerity; but it will not touch them if they are dead. It rarely alights upon the ground; for so proud is the creature of its elegant dress that it never permits a soil to remain upon it; and it may be frequently seen spreading out its wings and feathers, and regarding itself in every direction.

to observe whether the whole of its plumage is in perfect condition.

FREDERICK,

Then this bird must be as vain as a peacock?

MRS. F.

I should say, even more so. The time Mr. Bennett saw it to the greatest advantage was when occupied on its morning toilet; a ceremony performed at an early hour, as the bird always performed its ablutions twice in the day. Mr. Bennett says it was curious to observe how every feather was examined, and passed gently through its bill, in order to be thoroughly cleaned; and it was equally amusing to remark the conscious manner in which it would display its beautiful plumage, uttering notes of delight, as if enchanted with its own beauty. After completing its toilet it would descend to the lower perch, and look out for its favourite grasshoppers. The prehensile power in the feet is so great that he would turn himself round upon his perch without losing his hold. The glare of the sun annoyed him, and he delighted in a shelter from its rays. A looking-glass being brought him, he earnestly regarded the reflection of himself, never quitting his position the whole time the looking-

glass remained before him; and when it was moved lower in the cage, he instantly followed it; but appeared impatient that his actions should be closely imitated by the reflected figure. A portrait, the natural size of the bird, was taken by a Chinese, and being shown to him he immediately recognised it, and, uttering his cawing congratulatory notes, first pecked gently by its side, and then jumped about as if welcoming a companion.

ESTHER.

This story reminds me of an anecdote given by De Humboldt, of a monkey who distinguished, with great sagacity, the engravings in a work of natural history. The plates were not coloured, and yet the monkey stretched out its little hand to snatch at a wasp or a grasshopper each time the plates of those insects were presented to him; but viewed with the greatest indifference the engravings of skeletons, herds of quadrupeds, &c., which the book likewise contained.

HENRIETTA.

I have also read a story of a dog recognising a full-length portrait of his master.

HENRIETTA.

How much I should like a tame monkey !

MRS. R.

I once had one who took upon herself the entire care of four terrier puppies, whose mother had died. It was very amusing to see the ridiculous manner in which she nursed them in her arms, fed them, followed them wherever they went, hushed them to sleep when they cried, and corrected them, by a smart box on the ear, whenever they incurred her displeasure. This lasted until the puppies grew strong enough to carry the monkey, when she exacted a return for the care she had bestowed upon them during their infancy; riding upon their backs, whenever it suited her pleasure. This proceeding the puppies often attempted to resist, but in vain: she would slyly take her opportunity for jumping upon their backs, and, once mounted, it was impossible to unseat her. A tap in the face, or a pull of the ear, speedily enforced obedience; and, like the old man of the sea, in the story of Sinbad the Sailor, the foster-mother would triumphantly maintain her seat, until she grew tired of her ride, and voluntarily dismounted.

ESTHER.

Mrs. Clifford related to me a curious anecdote.

dote of a cat rearing a chicken! It seems that puss carried away the chicken from its mother soon after it was hatched; with what object, in the first instance, I cannot pretend to say. She took it, however to her own basket, where she kept it until it grew up; bestowing upon it the greatest care and affection.

FREDERICK.

But the cat could not feed it?

ESTHER.

Of course not: that office was performed by others; but the cat watched the chicken with maternal solicitude; kept it warm at night, and defended it most zealously from all intruders.*

HENRIETTA.

Will birds rear the young of another species?

MRS. F.

Constantly. A greenfinch has been reared by a redpole. Some young sparrows being left upon a lawn, were immediately fed by a variety of birds, which hastened to their assistance; and four ravens have been reared by a pair of magpies who had lost their own young, and immediately transferred their attentions to the little orphans.

* The above anecdotes are facts.

ESTHER.

Is it true that the birds in whose nests the young cuckoos are deposited, are not always able to provide them with a sufficiency of food?

MRS. F.

I believe it to be an admitted, though singular fact, and it is stated, that on such occasions, they procure the assistance of their neighbours. One of these nestlings has been known to have the attendance of twenty titlarks, and another of forty-eight wagtails; but it does not appear that the cuckoo is always fed by birds of the same species as its foster-mother; a spotted flycatcher having, on one occasion, lent its assistance, where three hedgesparrows proved insufficient to supply the urgent demands of a young cuckoo.*

HENRIETTA.

But how could the hedgesparrow make the flycatcher understand what it wanted?

MRS. F.

The most easy way of accounting for it is, to conclude that the hedgesparrows did not exercise any influence over their assistant; but that parental sympathy impelled the birds to succour

* Zoological Journal, No. xv.

the young, even of a strange species. The calls of the nestling cuckoo, when stimulated by hunger, are well known to be so extremely clamorous, and incessantly repeated, that the flycatcher and other birds may have been attracted by them; and thus become associated in the same task, without any previous communication with each other.

CHAPTER XIX.

THE CURFEW.

DESCRIPTION OF THE CURFEW. — ITS INTRODUCTION A MEASURE OF POLICY. — CURFEW BELL STILL RUNG IN SOME ENGLISH TOWNS. — CHIMNIES. — OCTAGONAL KITCHENS. — CARRIAGES OF THE SAXONS. — COLOURS OF THE ROYAL LIVERIES. — HORSES PAINTED RED. — TAILS OF ARABIAN HORSES TINGED WITH YENNEH. — NORWEGIAN FLOORS STREVED WITH JUNIPER. BEDSTEAD OF RICHARD III. — THE STRONG BOX. — CROSSED-LEGGED FIGURES UPON SEPULCHRAL MONUMENTS. — VOUES-AU-BLANC. — INFLUENCE OF EARLY EDUCATION.

“ On a plot of rising ground,
Hear the far-off curfew sound,
Over some wide-water'd shore,
Swinging slow with sullen roar.”

MILTON.

ESTHER.

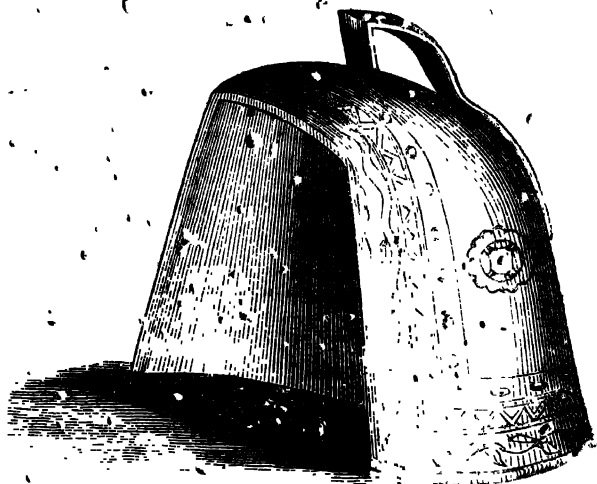
HENRIETTA, did you ever see an engraving of the curfew?

HENRIETTA.

No; I should like very much to look at one.

ESTHER.

Here, then, is a representation of the curfew, copied from one which has been in the family of a clergyman*, from time immemorial.



THE CURFEW.

HENRIETTA.

Are there any others in England?

MRS. F.

Some were said to be remaining, in the last

* The Rev. Gostling.

century, in Kent and Sussex. You see, by its form, how it was used; the wood and embers, were raked up as closely as possible to the back of the hearth, and then the curfew was placed over them; the open part being set against the back of the chimney. By this contrivance, the air was excluded, and the fire, of course, extinguished. The curfew was of copper, riveted together, as solder would have been liable to melt with the heat.

HENRIETTA.

How large was the curfew?

MRS. F.

That which is here represented was ten inches high, sixteen inches wide, and nine inches deep. It is an erroneous notion to suppose, that William the Conqueror introduced the curfew into England: it appears to have been used at a much earlier date; for we find that King Alfred, who restored the University of Oxford, ordered that all the inhabitants of that city should, every night, at the ringing of the curfew bell at eight o'clock, cover up their fires and go to bed. It is, therefore, more reasonable to conclude that the Conqueror revived, or continued the custom which he had previously established in Normandy; and which was used

in his time, in most of the monasteries and towns in the north of Europe; the intention being merely to prevent accidents by fire, since all the common houses at that period were constructed of timber, and the *Saxon Chronicle* makes frequent mention of towns burnt from being built of wood. The adoption, or revival, therefore, of the curfew in England, must consequently have been a wise measure, and must be looked upon as a law of police, the improved vigilance of which was the chief benefit derived by the English of that period from the government of William and his successors.

ESTHER.

And yet, it is always numbered among the oppressive acts of William, and is said to have been imposed upon the English, as a badge of servitude.

MRS. F.

Yes, it is often quoted, to show with what severity the Conqueror sought to press his cruel government, even to the very residues of our forefathers. Thus, we read of the Battle of Hastings becoming a tale of sorrow, which old men narrated by the light of the embers, until warned to silence by the sudden tolling of the curfew. Thomson admirably describes the tyranny of the custom : —

"The shivering wretches, at the curfew's sound,
Dejected sank into their sordid beds,
And, through the mournful gloom of ancient times,
Mused sad, or dreamt of better."

These errors respecting the curfew only show us how prone we are to couple with the memory of an oppressor acts of oppression not strictly chargeable to his character; and how ready we are to impute evil intentions, where good only is designed, simply because they are the acts of a cruel disposition.

ESTHER.

But in judging of people's actions, we generally ascribe them to bad or good motives, according to the known character of the individual.

MRS. F.

Yes; and although we should be slow in passing a rash censure upon another, yet "if, in the conduct of any individual, we perceive a constant tendency to vice, we have reason to question the purity of his motives, when any part of his conduct is at variance with its general tenor; but if, on the contrary, we perceive an uniform integrity in his ordinary behaviour, common justice and candour demand that, in extraordinary cases, we should ascribe it to the motive

which seems to sway him in the ordinary concerns of life.*

ESTHER.

How late was the curfew continued?

MRS. F.

The practice was observed, to its full extent, only during the reign of the Conqueror and his successor; and probably, after that period, people were not compelled to extinguish their fires and lights; but traces of the custom exist, even now, in several towns in England. At Sandwich, the curfew bell is rung to this day; so it is at St. Helen's Church at Abingdon, at eight in the evening, and four in the morning; and it is likewise rung nightly at Southampton, Winchester, Ringwood, and in many other places in England.†

HENRIETTA.

Our ancestors had no chimnies to their houses.

MRS. F.

No; chimnies were not general until the time of Elizabeth, the smoke being suffered to escape by an opening in the roof.

HENRIETTA.

How comfortless that must have been!

* Brodie's Roman Republic.

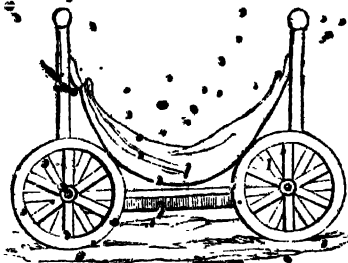
† Domestic Life in England.

MRS. F.

One thing is to be remembered, and that is, that our forefathers did not keep their rooms so warm as we do, and for many months in the year entirely dispensed with fires; indeed, so late as the reign of Henry VIII. it appears that none at all were allowed in the University of Oxford. The ancient English kitchens were curious; they were generally octagonal, with several fire-places all without chimnies; there was no wood in the building, and the steam and smoke escaped from a turret on the top of the stone conical roof.*

ESTHER.

Nor had they much luxury in carriages. I saw, the other day, a representation of the vehicle used by the Saxons to carry great personages; it was nothing more than a hammock swung upon four wheels.



* The kitchen of the abbey of Glastonbury still remains sufficiently entire to show the lantern roof.

MRS. F.

Queen Elizabeth's carriage had no springs.

HENRIETTA.

Have the royal liveries always been scarlet and blue?

MRS. F.

No; they have varied with the different families to which the sovereigns belonged. White and red were the colours of the later Plantagenets, the last of whom was Richard II. The liveries of the House of Lancaster were white and blue; those of the House of York were murrey and blue, and of the Tudors, white and green. The colours of the Stuarts and of George I. were yellow and red; the succeeding sovereigns have all had their liveries of scarlet and blue.

From the description of a procession at the diet of Ratisbon*, in 1630, it would appear that red was then the favourite imperial colour. The horsemen, who were chiefly Hungarian, are described as riding white horses, with their manes, tails, and feet painted red. The riders wore long coats of red or blue cloth; their boots were of red-yellow morocco. The emperor Ferdinand II. had a carriage lined with

* Raumer's History of the 16th and 17th Centuries.

red velvet, and the roof of red leather; and the coats of the servants of the king of Hungary, were also turned up with red velvet.

ESTHER.

I thought the Arabs of the desert were the only people who painted their horses.

FREDERICK.

How do they colour them?

ESTHER.

The Arab horses have always the tips of their tails dyed purple* or red with the hennah (*Lawsonia inermis et spinosa*), so generally employed in the East as a dye for the feet and hands.

MRS. F.

When used for this last purpose the leaves are pounded, and, being made into a paste, are laid upon the hands and feet, on going to bed. When taken off a red dye is left, and another application of a mixture of soot and lime is sometimes applied, to change it to a dark olive or blackish hue. †

But we have wandered far from our subject — the domestic habits of our ancestors; — I

* Lamartine, Voyage en Orient.

† Wilkinson's Thebes, p. 265.

was going to tell you about their beds. Feathers and down are quite modern luxuries; the ancient Britons slept on skins spread upon the floor: after the Roman invasion rushes and heath were substituted; and, on the introduction of agriculture, they slept upon straw, which material was indeed used as a couch, in the royal chambers of England, at the close of the thirteenth century.

ESTHER.

"The floors were also strewn with rushes to a very late period.

MRS. F.

And I find, from the account of a late traveller in Norway, that in that country the floors of the rooms are, at least once a week, strewn over with the green tops of the fir or juniper, which present a lively and pretty contrast to the white floors. The selling of these green juniper bards forms a little trade for the poor and infirm.*

But, talking of beds, I was reading a curious history of the bedstead which was carried by Richard III. to Leicester, the night before the battle of Bosworth Field. After the battle, the bedstead remained unclaimed, and fell into the hands of the master of an inn in that city,

* Laing's Norway. At funerals, the road into the churchyard, and to the grave, is strewn with these green tops.

called the Blue Boar, where, I believe, it is still preserved. About a hundred years after, as a servant was sweeping under the bed, she struck with her broom against the bottom of the bedstead, and out of it fell some broad gold pieces. On further examination of the bedstead, it was discovered to have been the travelling treasury, as well as the sleeping place of King Richard. The bottom was found to be double, hollow, and full of broad gold coin, of the tinte of Richard; the head was constructed in the same manner, and equally stored; and even the massy swelling pillars, whose weight led every one to consider them as solid, were discovered to be hollow, and also full of money. In short, the landlady of the inn, who was a widow, became on a sudden the richest person in the town. As in those days, every one kept their money in their own houses, from the absence of better means of securing it, the riches of the mistress excited the avarice of two of her servants, who one night, barbarously murdered the poor landlady. They were, however, pursued by justice, and afterwards executed.

HENRIETTA.

If we should ever go to Leicester, we must not forget to enquire for the bedstead of King Richard.

MRS. F.

It appears that the strong box was always placed beside the bed, from a frieze in King Edward the Confessor's Chapel, in Westminster, in which there is one so represented.

HENRIETTA.

Upon whose monument is it?

MRS. F.

I do not recollect, it is so many years since I visited the Abbey; but here comes a most welcome visitor, our friend Mrs. Clifford.

MRS. C.

I hope I am not too late to join this morning's conversation. As you are on the subject of monuments, I would recommend you to ask your aunt to show you, some day, the monuments in the Temple Church in London,

ESTHER.

You allude to the tombs of the Knights Templars.

HENRIETTA.

I have seen already the monument of one of these knights; you may know them always by their legs being crossed.

MRS. C.

It is an error to suppose that all the cross-legged figures which we see upon tombs are Knights Templars. The custom of so representing individuals is not of an earlier date than the time of Stephen, and appears to have been principally confined to England. The persons so represented are supposed to have been not only those who went to Palestine as soldiers and pilgrims, but also those who had vowed to go, or who had contributed to the expense of the crusades. The supposition is, in some degree, warranted by the fact, that there are instances of women in this singular posture on monumental remains.

HENRIETTA.

What virgious vows the knight sometimes made.

MRS. F.

You say that they are of little practical historical interest.

HENRIETTA.

Madame St. Ange was telling me, the other day, of the little "*Vous au blanc*," in France.

MARY.

Who are they?

HENRIETTA.

As nearly as I could learn from Madame

St. Ange, they are children who, from some peculiar circumstance, have been dedicated at their birth to the Virgin Mary. The Duke de L'ordeaux, for instance, was so *voué* from his birth, in consequence of the melancholy assassination of his father. These little "*Voués*" are always dressed in white until they are about eight or nine years old (I do not know the precise age), and, if in the higher ranks of life, their nurses and attendants also wear the same, and some even drive in white carriages, with the servants in white liveries. Must not they look pretty!

MRS. C.

To me, on the contrary, it would be a most melancholy sight to witness such extreme folly, not to call it by a harsher name, of the vanity and self-esteem excited in the minds of the little *voués*, and of the extreme jealousy awakened in those of their less distinguished companions. Reflect only, for one moment, upon all the bad feelings to which this parade must give rise, and you must at once see the mischief of so erroneous a practice.

MRS. F.

Yes; I fear there is more of the form than of the feeling of religion in these dedications; at

the same time that I am convinced religious feelings cannot be instilled too early into the mind of children. Their infant lips should be taught to pray before they can fully understand the nature of the obligation. A child ought never to be able to date the time when first it began to say its prayers; but a sense of the duty should grow up with its growth, as a feeling inseparable from and inherent in its nature. Impressions made by a parent in early years are seldom obliterated, and though often obscured for a time, yet the sublime truths of religion will burst forth with double force, "when they recur in close association with a father's affection and a mother's tenderness — with a lively recollection of a home where the kindest sympathies of the human heart shed around the domestic circle all that is lovely in life, and a mild and consistent pious habitually leads the way to a life that is to come."

HENRIETTA.

Aunt, I heard you say the other day, that you do not approve of Mrs. Westall's plan of always giving little children a *reason* for every thing she desires them to do.

MRS. F.

Indeed, I do not. Milk for babes, we are told in Scripture; and though it is certainly right to show children the propriety of what is required of them, yet I would have them yield to parental authority rather than to argument or persuasion. Prompt implicit obedience is necessary for the happiness of both parent and child; and I would, also, have a child place such entire confidence in the judgment of its parents, as to believe and feel that whatever they enjoin *must* be right, however little it can see the necessity or object of the command. What can be a better preparation for the reception of religion than inculcating such a feeling? what a better introduction to the precepts of that gospel by which we are enjoined to walk by faith and not by sight?

MRS. C.

How many eminent and good men have traced their most valuable attainments to the early impressions made upon their minds by the instructions of a parent.

MRS. F.

Hall, Hooker, Doddridge, and Sir William Jones, are all eminent examples of the influence of a mother's precepts — so is St. Augustine:

nor ought we to omit Timothy, who from a child had "known the Holy Scriptures," inheriting that "unfeigned faith, which had dwelt first in his grandmother Lois, and his mother, Eunice.*

ESTHER.

And Dr. Adam Clarke relates, that it was from his mother he received his religious impressions: he describes her as a person powerful in the Scriptures, and who, whenever she corrected her children, gave chapter and verse for it.

MRS. C.

And such a practice, if generally followed by parents, would soon render the Bible the rule of life, and would go far to make religion, what it ought to be, the foundation and guide of our conduct. These, and numberless other examples, serve to show the importance of a parent's influence, and must deeply impress upon those who are blessed with children the high responsibility under which they lie, to bring them up in the nurture and admonition of the Lord.† Unceasing diligence is necessary, und

* Timothy, Chap. ii. v. 15., and Chap. i. verse 5.

† See in Hints on Early Education, and Abbott's Home, some excellent observations upon this subject.

Divine assistance, to "train up a child in the way he should go;" but no other cares are rewarded with so rich a recompence; no other labour inspires such heart-felt enjoyment. Parents have the immortal soul of their children in their keeping: their future happiness is in their hands. — Let them be faithful to the trust reposed in them, and they may confidently hope, through the Divine assistance, to prepare them for heaven and immortality.

THE END.

